Defence Technical College and Aerospace Business Park St Athan

Llywodraeth Cynulliad Cymru
Welsh Assembly Government

sodexo metrix

7.5 Construction Method Statement

Revisions table

DATE	COMPANY	INITIALS	COMMENT	REVISION NO
24/03/2009	Laing O'Rourke	RS	Planning Submission Review	P01
25/03/2009	Laing O'Rourke	RW	Updated Construction Traffic Volumes and Ecological Mitigation Strategy	P02
24/04/09	Laing O'Rourke	BW	Updated to incorporate comments from Cundall, Scott Brownrigg, Pell Frischmann and Sodexo	P03
26.04.09	Laing O'Rourke	MV	Updated for revised ABP Phases 1, 2 & 3 plus updated Deliveries and Workforce Traffic.	P03
06/05/09	Laing O'Rourke	MV	Amended as requested by Mike Grimmel – see M.G. email dated 05/05/09 and Andrew Garbutt – see AG email 06/05/09.	P04

Contents

1.0 Construction Phasing

1.1 Defence Technical College (DTC)

The DTC will be constructed in 3 main phases. The outline of demolition and construction phasing for the Defence Technical College is shown on the following drawings:

SA-C0xxx-SK-xxx-LO-x-0032 rev P01 – Enabling Works Stage1
SA-C0xxx-SK-xxx-LO-x-0033 rev P01 – Enabling Works Stage 2
SA-C0xxx-SK-xxx-LO-x-0034 rev P01 – Construction Phase 1
SA-C0xxx-SK-xxx-LO-x-0035 rev P01 – Construction Phase 2
SA-C0xxx-SK-xxx-LO-x-0036 rev P01 – Construction Phase 3

In order to facilitate the construction of the DTC there are a number of early works that will be carried out as part of Enabling Works contracts, by either the Welsh Assembly Government, Defence Estates or Metrix, including:

Asbestos removal
Demolition of existing buildings to East Camp
Service disconnections, alterations and diversions
Ground decontamination
Ecological mitigation works

1.1.1 Enabling Works Stage 1 (Summer 2009 –Spring 2010)
Refurbishment of existing buildings to the southern side of the existing East Camp will be undertaken to allow No4 School of Technical Training (4SoTT) transition from their current estate, spread across a large proportion of East Camp to a confined enclave outside of the construction site for DTC until the new DTC facilities are available. A separate planning application has been made for these works.

Asbestos removal and demolition of existing buildings which are currently vacant on East Camp along with service disconnections, alterations and diversions within the site boundary and along Eglwys Brewis road will be undertaken.

Ecological mitigation works in relation to bats, hedgerows and trees will be carried out during hibernation periods / non breeding seasons for birds.

Access for these works will be via the existing West Gate through West Camp and /or the existing aircraft gate (denoted as Gate 2 on phasing plans) off Eglwys Brewis Road opposite the Picketston access point.

1.1.2 Enabling Works Stage 2 (Spring 2010 – Summer 2010)
Upon completion of the transition of 4SoTT to the southern enclave in Spring 2010, the remaining existing buildings on the northern part of East Camp will be demolished (except existing Medical & Dental, Eglwys Brewis Road Spar Shop and a small number of buildings to be used during the construction process, or those retained for protected species habitat.

Demolition of the southern most Hangar on the Picketston site will be carried out in the summer of 2010.

Completion of service disconnections, alterations and diversions within the site boundary and along Eglwys Brewis road will be undertaken.

Any underground decontamination measures required will also be undertaken as part of the Enabling Works to provide a clear site ready for the main Construction of the new Defence Technical College.

Construction of the new Museum access point off Eglwys Brewis Road and installation of new perimeter security / boundary fencing to the main DTC site and Picketston.

Installation of construction site offices, welfare and compounds.

Ecological mitigation works in relation to bats, newts etc required to be carried out while the relevant species is active, including the Newt translocation to the previously constructed southern Newt Ponds, will be undertaken from the spring of 2010 prior to main construction commencement.

Access for these works will be via the existing West Gate through West Camp and /or Gate 2 for access to the former East Camp, off Eglwys Brewis Road and Gate 3 onto the Picketston site.

Where planning permission is required to undertake enabling works it will be the subject of separate application(s).

1.1.3 Construction Phase 1 (Summer 2010 – Winter 2013)
The bulk of the construction of the new DTC will be carried out over a 39 months commencing Summer 2010 following the newt translocation, clearance of existing buildings and underground services on the existing East Camp.

DTC Phase 1 construction will be handed over in late 2013 for Metrix to prepare and bring into service the new DTC for training commencement Spring 2014.
Access for Phase 1 construction works will be via Gate 1 & 2 onto the former East Camp and Gate 3 for access to Picketston, accessed initially along the existing Eglwys Brewis Road, and subsequently along new Northern Access Road once available for construction use (approximately Summer 2011).

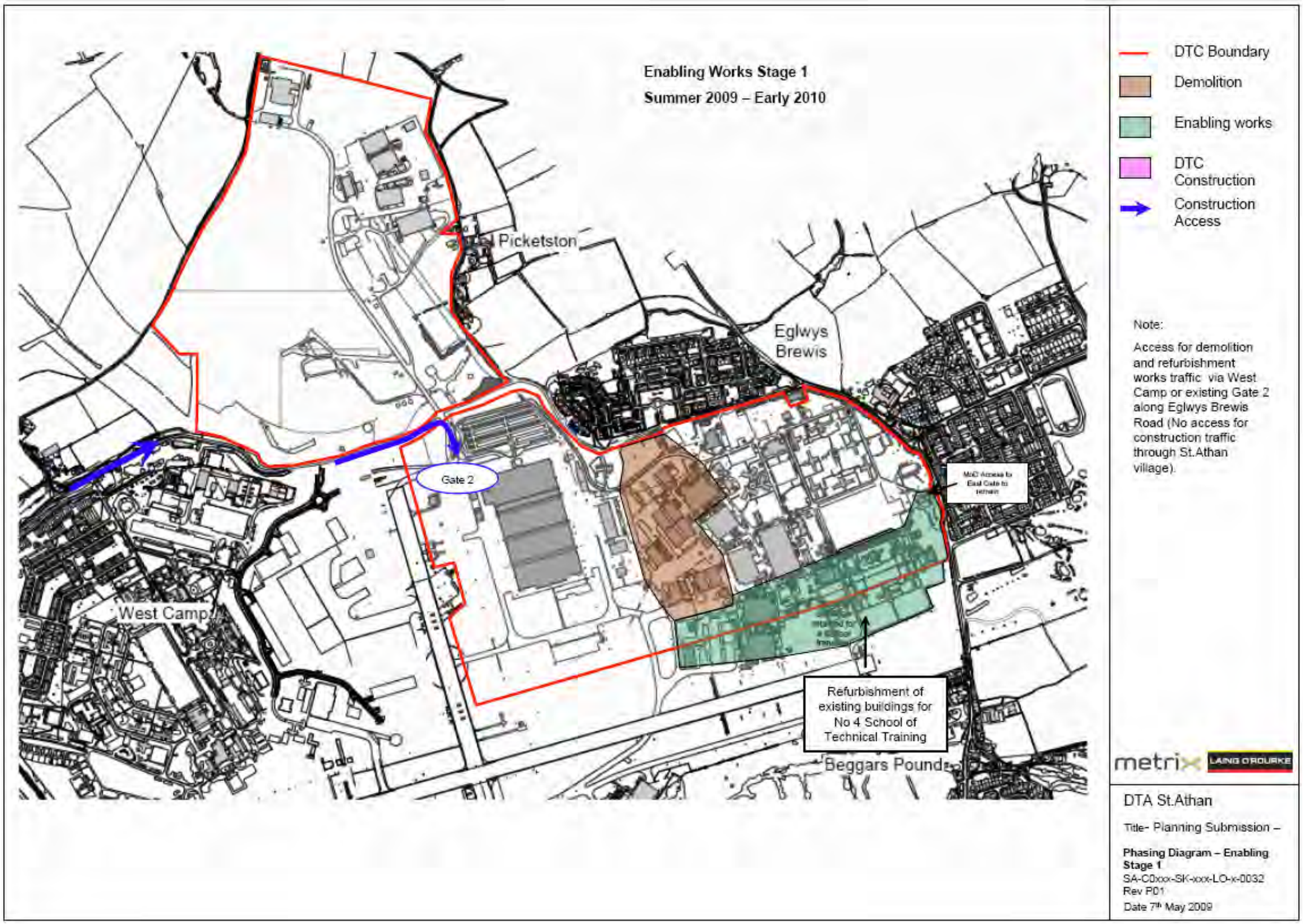
Access for MoD personnel to the existing Medical & Dental will be via the newly constructed Museum access off the existing Eglwys Brewis Road and access to the 4SoTT southern enclave will be via the existing East Gate.

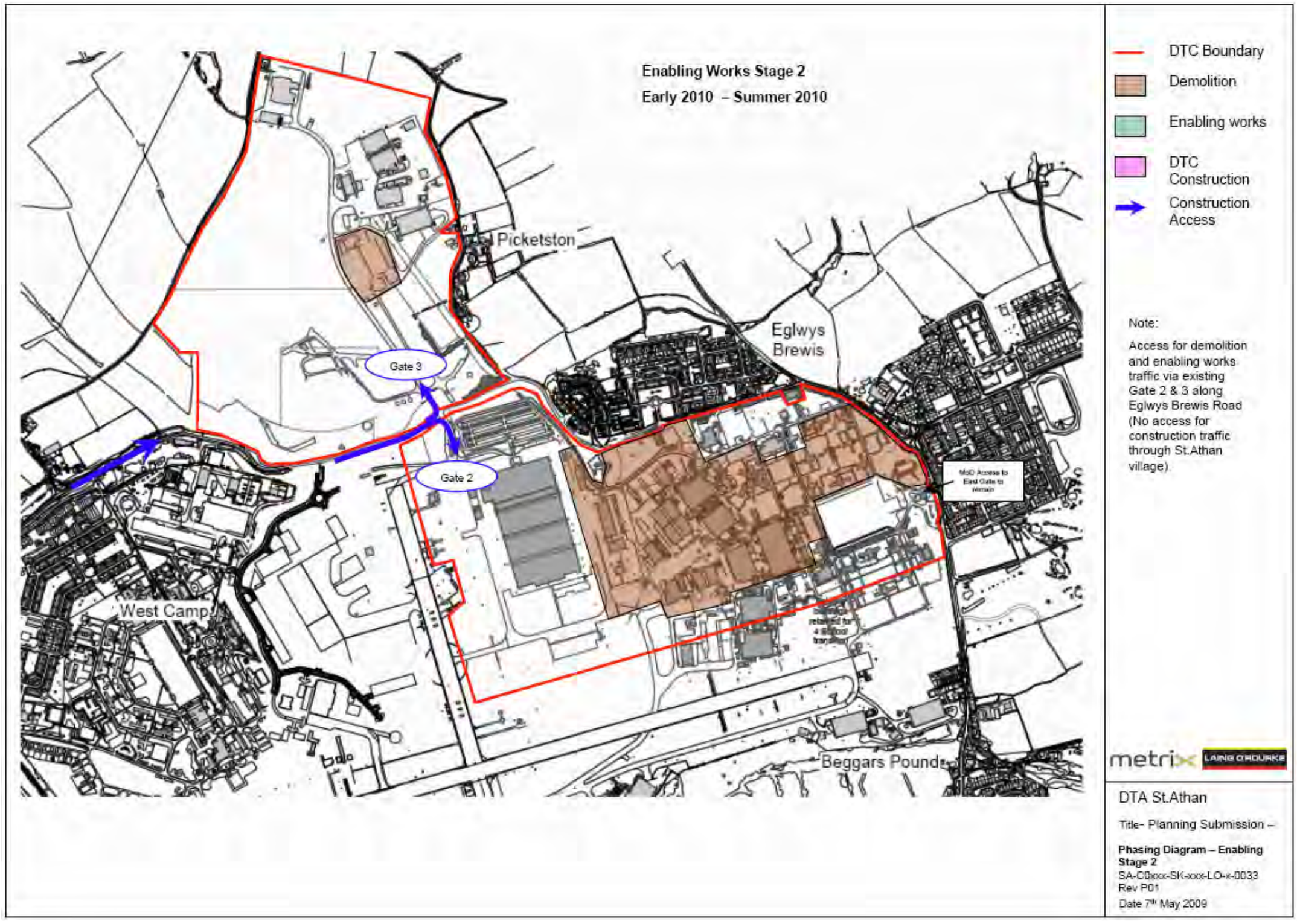
1.1.4 Construction Phase 2 (Early 2014 – Spring 2014)
Completion of remaining Single Living Accommodation buildings, demolition of the 4SoTT southern enclave following transition of 4SoTT into the new DTC and demolition of existing buildings used for construction purposes on the main DTC campus.

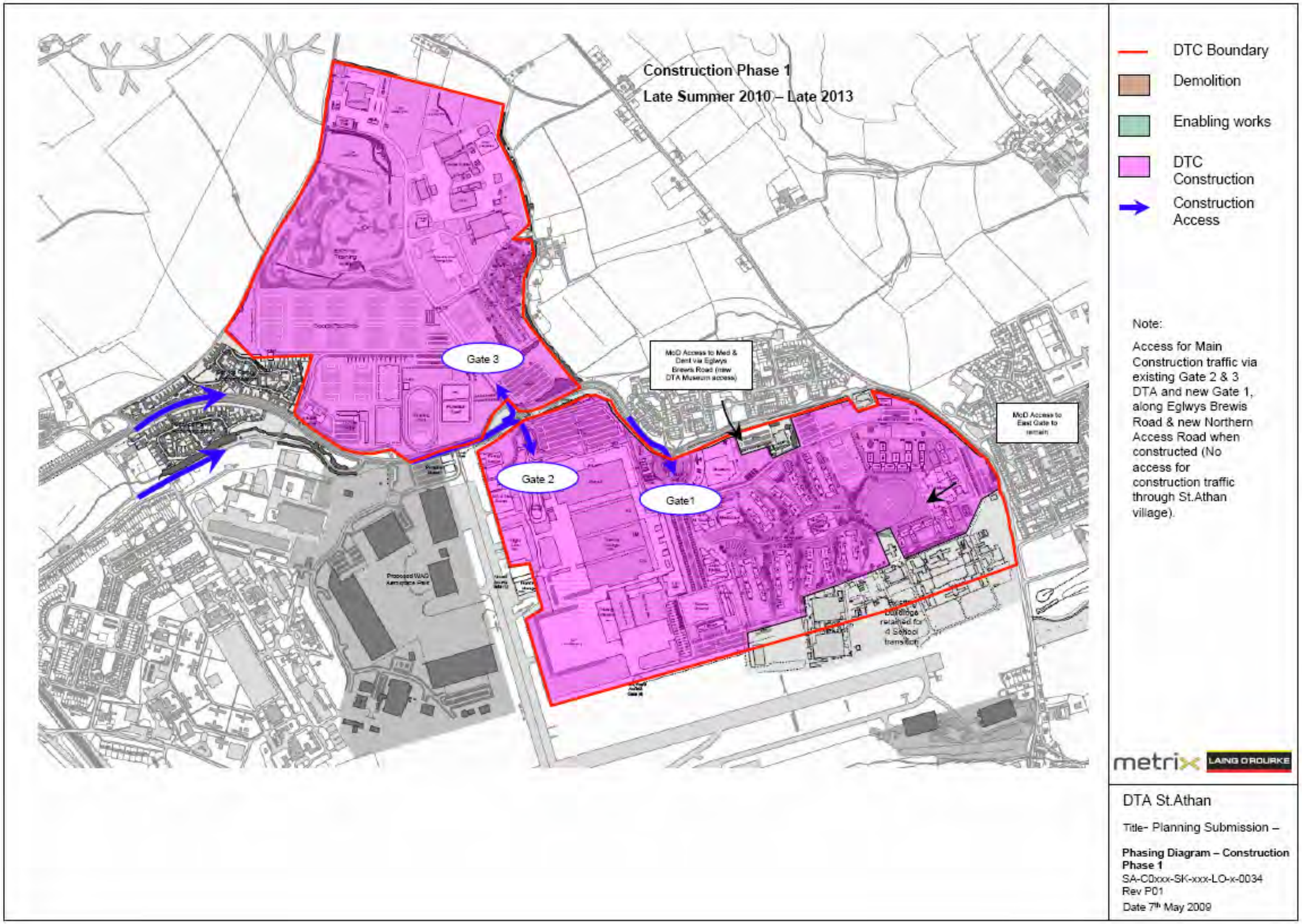
Access for Phase 2 construction works via the existing East Gate and the new Museum access point off Eglwys Brewis Road with no access through St Athan village.

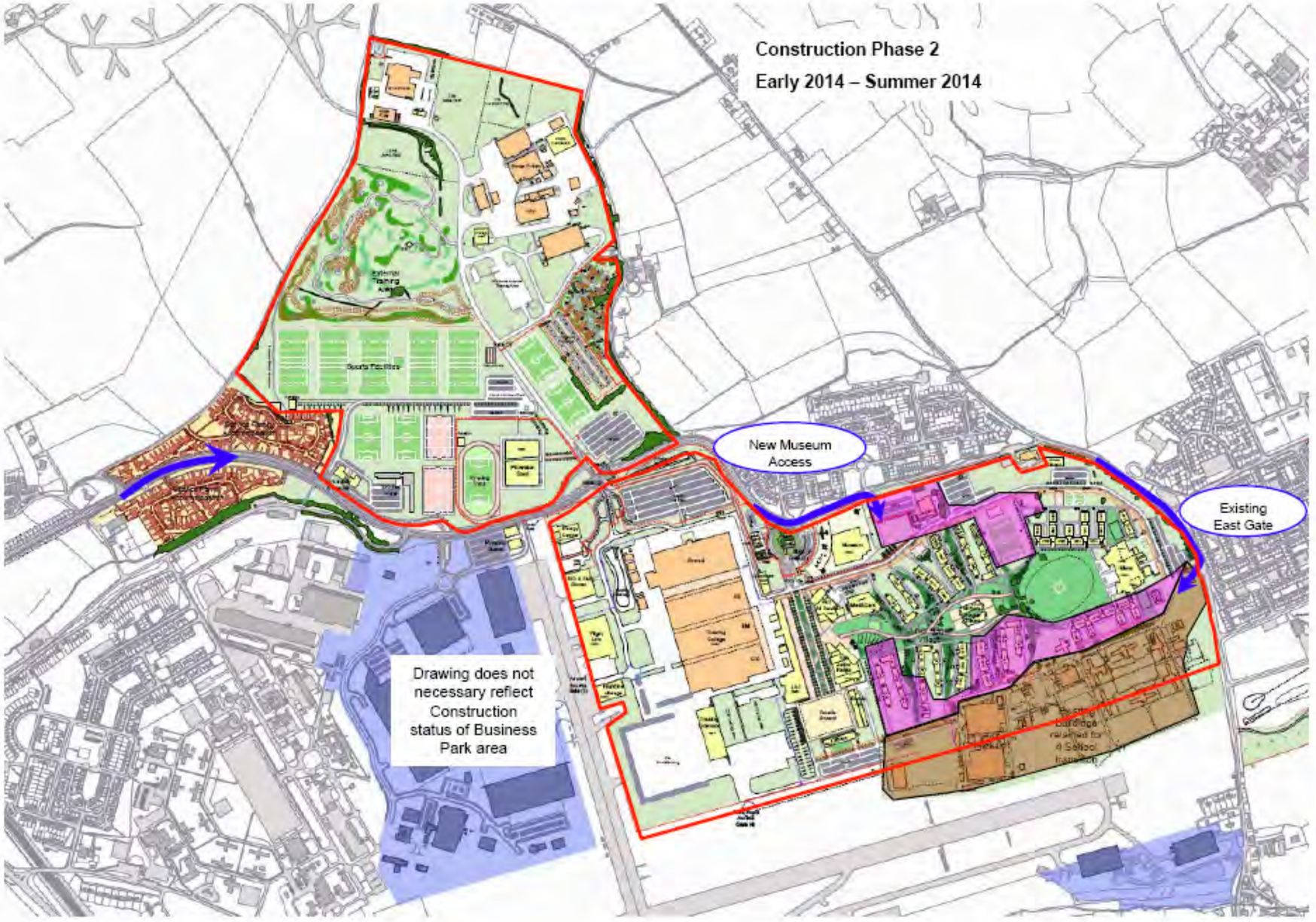
1.1.5 Construction Phase 3 (Spring 2014 – Summer 2014)
Phase 3 DTC construction comprises of the completion of hard and soft landscaping works to the southern car parking and existing East Gate following demolition of the 4SoTT enclave.

Access for Phase 3 construction works will be via the existing St Athan East Gate off Cowbridge Road into Eglwys Brewis Road with no access through St Athan village.


Enabling Works Stage 1
Summer 2009 – Early 2010
Picketston
Eglwys Brewis
Gate 2
West Camp
Refurbishment of existing buildings for No 4 School of Technical Training
Beggars Pound
DTC Boundary
Demolition
Enabling works
DTC Construction
Construction Access
Note:
Access for demolition and refurbishment works traffic via West Camp or existing Gate 2 along Eglwys Brewis Road (No access for construction traffic through St.Athan village).
metrix
LAING O'ROURKE
DTA St.Athan
Title- Planning Submission –
Phasing Diagram – Enabling Stage 1
SA-C0xxx-SK-xxx-LO-x-0032
Rev P01
Date 7th May 2009


Enabling Works Stage 2
Early 2010 – Summer 2010
Picketston
Eglwys Brewis
Gate 3
Gate 2
West Camp
Beggars Pound
MoD Access to East Gate to remain
DTC Boundary
Demolition
Enabling works
DTC Construction
Construction Access
Note:
Access for demolition and enabling works traffic via existing Gate 2 & 3 along Eglwys Brewis Road (No access for construction traffic through St.Athan village)
metrix
LAING O'ROURKE
DTA St.Athan
Title- Planning Submission –
Phasing Diagram – Enabling Stage 2
SA-C0xxx-SK-xxx-LO-x-0033
Rev P01
Date 7th May 2009


Construction Phase 1
Late Summer 2010 – Late 2013
Gate 3
Gate 2
Gate1
MoD Access to Med & Dent via Eglwys Brewis Road (new DTA Museum access)
MoD Access to East Gate to remain
Proposed MAG Aerospace Plant
Building retained for 4 School transition
DTC Boundary
Demolition
Enabling works
DTC Construction
Construction Access
Note:
Access for Main Construction traffic via existing Gate 2 & 3 DTA and new Gate 1, along Eglwys Brewis Road & new Northern Access Road when constructed (No access for construction traffic through St.Athan village).
metrix
LAING O'ROURKE
DTA St.Athan
Title- Planning Submission –
Phasing Diagram – Construction Phase 1
SA-C0xxx-SK-xxx-LO-x-0034
Rev P01
Date 7th May 2009



DTC Boundary

Demolition

Enabling works

DTC Construction

Construction Access

Note:

Access for Construction traffic via New Museum Access off Eglwys Brewis Road and the Existing East Gate from North (No access for construction traffic through St.Athan village).

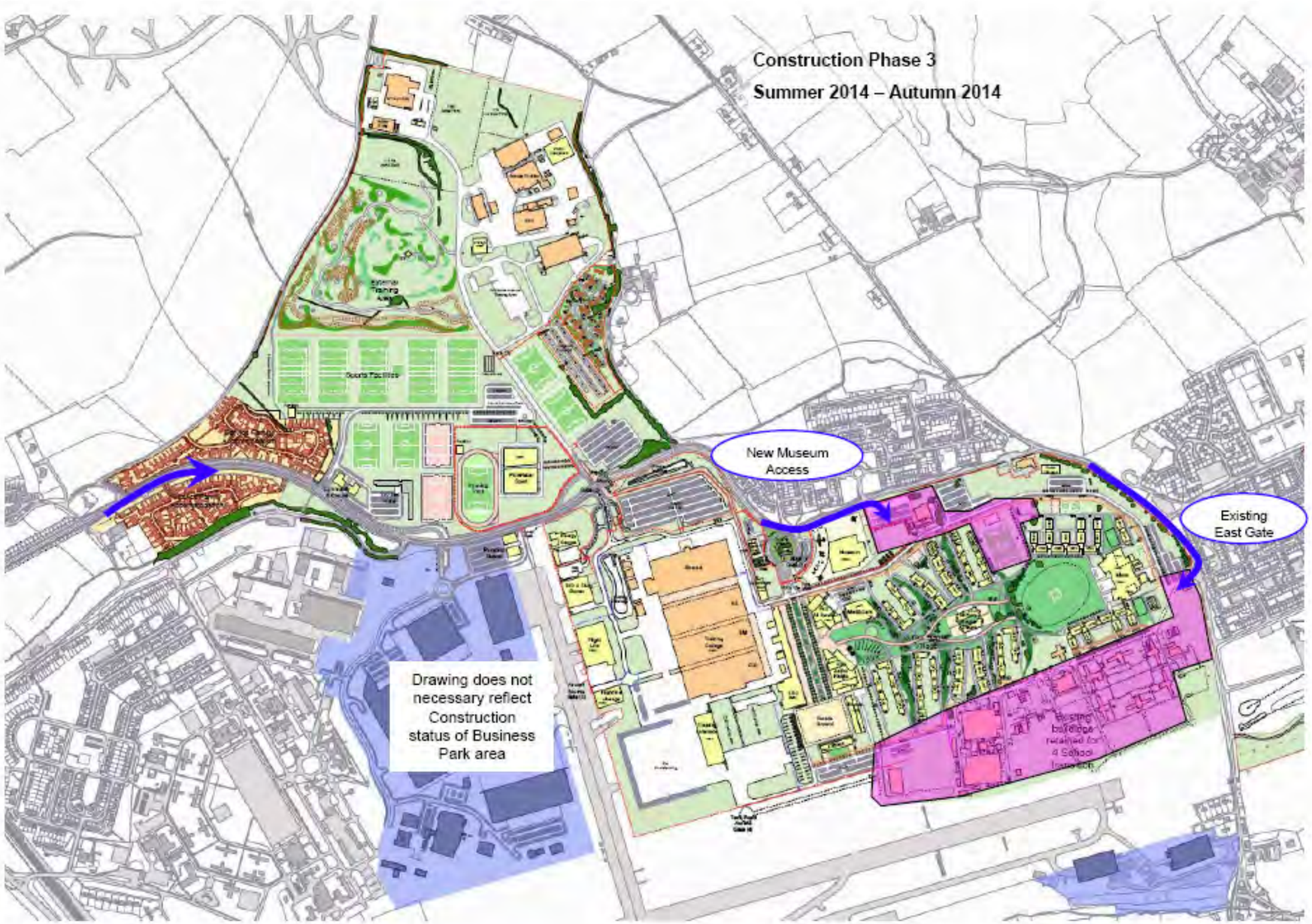
metrix LAING O'ROURKE

DTA St.Athan

Title- Planning Submission –

Phasing Diagram – Construction Phase 2

SA-C0xxx-SK-xxx-LO-x-0035
Rev P01
Date 7th May 2009



DTC Boundary

Demolition

Enabling works

DTC Construction

Construction Access

Note:

Access for Construction traffic via New Museum Access off Eglwys Brewis Road and the Existing East Gate from North (No access for construction traffic through St.Athan village).

metrix LAING O'ROURKE

DTA St.Athan

Title- Planning Submission –

Phasing Diagram – Construction Phase 3
SA-C0xxx-SK-xxx-LO-x-0036
Rev P01
Date 7th May 2009

1.2 Service Families' Accommodation (SFA)

All SFA sites will be carried out as one continuous phase commencing 2nd Quarter / 3rd Quarter 2011 (dependant on number of houses at each individual site) and continuing to overall completion end of 2nd Quarter 2014. Completion of houses at each site will be arranged such that progressive occupations can commence early 4th Quarter 2013 to coincide with Phase 1 DTC completion and mobilisation of training delivery.

1.3 Aerospace Business Park (ABP)

The actual phasing of ABP works will be dependant on tenant take-up. Currently the following programme is envisaged:

1.3.1 Phase 1 – 2011 to 2014.

North of Runway works comprise Building No 1, South of the runway includes Building B2, B3 refurbishment and extension, plus new compass swing, fire training, bulk fuel extension and vehicle parking and extensions to taxiways. Buildings 211, 5 and 8 will be demolished. All these works will be accessed from north of the runway as described below. Actual progress of the works will be subject to tenant take-up. In addition surplus excavated material from Northern Access Road, Gileston Old Mill and St Athan B4265 Junction upgrade will be deposited in fill areas on the south side of the runway. Access to these filling works will be via a temporary access off the "C" class road running from the B4265 to Batslays just north of the existing railway bridge.

1.3.2 Phase 2 – 2014 to 2020.

Buildings 2, B3 (extension) B4 and associated taxiways/aprons will be undertaken in this phase together with construction of the new southern access from the B4265 which, when complete, will provide both constructional and operational access. Building 208 will be demolished in this phase.
These works will be undertaken as dictated by tenant take-up over the Phase 2 period. Initially access to these works will be obtained from North of the runway via an ATC controlled crossing of the western end of the runway until such time as the new southern access is established and available for construction traffic use.

1.3.3 Phase 3 – 2020 to 2028

South of Runway - At the commencement of this phase the new southern access from the B4265 will be operational and will provide construction and operational access from the south. Existing buildings no's 383 & 385 will be demolished, all new Estates roads and infrastructure as required will be installed and buildings no's B5, B6, B7, B8, B9, B10 and B11 will be constructed all subject to tenant demand.
North of Runway – Existing buildings no's 215,217 & 232 will be demolished and the new roads and infrastructure will be completed. Buildings 3, 4 , 5, 6 and 7 will be constructed subject to tenant demand and the ATC tower and fire station will be re-located.

c1.4 Northern Access Road and Eglwys Brewis Road upgrading from ABP entrance to DTC Gate 1

Initially the Northern Access Road will be constructed from its intersection with the B4265 to its intersection with the existing Eglwys Brewis Road at Picketston as a single phase up to temporary wearing course. It will then be opened to construction traffic thus avoiding use of the existing Eglwys Brewis Road west of new ABP entrance at Picketston.

The online upgrading/widening of the Eglwys Brewis Road will be undertaken in 2 parts. The first part from the new ABP entrance (i.e. eastern end of Northern Access Road) will be constructed at the same time as the Northern Access Road to ensure earliest possible upgraded road access to the new DTC construction entrance at Picketston. This online widening and re-alignment work will be carried out half carriageway at a time working under protection of single way shuttle traffic lights. Utility diversions/re-alignment will be carried out at the beginning of the first part. Once the first part is complete the second part will follow on from DTC Gate 2 (construction entrance) around to DTC Gate 1 at Eglwys Brewis working half carriageway at a time under protection of single way shuttle traffic lights. This work will make due allowance for continuity of access to the dwellings at Picketston and Picketston Close.

1.5 Gileston Mill Improvement of B4265 and St Athan B4265 junction improvement;

It is intended that both of these road improvements are undertaken as a single continuous phase for each with the work completed prior to the peak delivery periods for DTC, ABP, and SFA occurring. The envisaged construction period is 3rd quarter 2010 to end of 2nd quarter 2011

1.6 Waycock Cross – junction improvements.

The works at Waycock Cross are split into 2 phases. Phase 1 will comprise that work necessary to improve the junction for DTC/ABP/SFA construction traffic. This work will be undertaken in parallel with the Northern Access Road, Gileston Old Mill and St Athan junction improvement such that it is complete in time for peak construction traffic use. Phase 2 will be completed to coincide with the opening of the DTC, ABP phase 1 and SFA.

2.0 Environmental

2.1 Site Waste Management Plan

2.1.1 General Strategy

Prior to commencement on Site the Principal Contractor will prepare a Site Waste Management Plan (SWMP) that complies with the requirements of current legislation and submit same for any Statutory and/or Metrix approvals(s). The SWMP shall contain but not be limited to the Construction Principal Contractors proposals regarding the following;

- Proposals as to how waste will be classified
- Waste reduction and recycling actions
- Minimising waste through design process
- Designs and material specifications for new construction to embrace the cost effective use of re-cycled materials wherever possible – e.g. steel products, blocks, plasterboard, concrete, etc.
- Waste management arrangements – segregation etc.
- Client and Contractor responsibilities for waste
- Waste estimates and minimisation strategies
- Communication and training of operatives in site waste rules / induction
- Continuous improvement
- Waste Data Record Form for all waste removed from Site or disposed on Site
- Keeping records of Licenses and Permits
- Compiling comparison between estimate and actual quantities of waste, deviations from the plan and final declaration
- List of Common European Waste Codes (EWC's) that the Contractor intends to comply with.

A first Draft example Site Waste Management Plan is attached at Appendix A which indicates the Principal Contractor's process for discharging his statutory and corporate obligations / policies. This document will be progressively updated through an iterative process as design develops, materials are selected and quantities are available, which in turn allows comparison and measurement against objectives.

Appendix A Section 3.0 provides outline proposals and processes for reclamation and re-cycling which will progressively be developed as design and site surveys progress. Appendix 3.0 is based upon the DTC Principal Contractor (Laing O'Rourke) policies and processes, but similar processes will be followed by individual SFA, new Roads and ABP construction contractors.

2.2 Waste materials to be reclaimed, re-used and recycled during construction

The main re-cycling and reclamation activities for each main area of work are summarised as follows;

2.2.1 Defence Technical College

The DTC site is principally an existing MoD/RAF site with significant demolition activity prior to commencement of construction operations which will be processed as follows;

- Demolition – Above Ground brickwork, masonry and concrete – approx 10,000m3 – crushed and re-used as Granular Material on Site.
- Demolition – below ground concrete slabs and foundations – approx 10,000m3 - crushed and re-used as Granular Material on Site.
- Demolition – below ground hardstandings and Roads – Blacktop and Concrete – approx 20,000m3 - crushed and re-used as Granular Material on Site.
- Demolition – below ground, hardstandings and Roads – Granular foundations – approx 20,000m3 - excavated and re-used as Granular Material on Site.

Note: Quantities entered are "estimated" – to be calculated as design progresses.

2.2.2 Service Families' Accommodation

With the exception of the Golf Course site all of the SFA sites are either Greenfield sites or sites which have been returned to agricultural use. Accordingly little re-cycling of existing features is expected at those sites. A portion of the Golf Course site was previously used as a sports stadium and hospital site. Some hardstandings (or demolition arisings) still exist, which amount to no more than 5,000m3 of material. This will be crushed and re-used as granular material on Site.

2.2.3 New Roads

Since the new roads construction works do not involve demolition of significant structures the main opportunity for re-cycling provided by these works is the re-use of existing road excavations which where possible will be re-used as granular fill material. The approximate quantities of such excavations are;

- Northern Access Road – nil
- Eglwys Brewis Road Upgrading – 3,000m3
- Gileston Old Mill – 1,000m3
- St Athan B4265 Junction improvements – 500m3

2.2.4 Aerospace Business Park

Like DTC a principal part of ABP is on the site of an existing MOD/RAF base. The ABP strategic plan involves utilising existing hangar and general buildings and progressively replacing them as new tenants with specific building requirements move to the site.

As the new building works progress in phases demolitions will yield re-cycling opportunities as follows;

- Demolition – Above Ground brickwork, masonry and concrete – 10,000m3 – crushed and re-used as granular material on site.
- Demolition – below ground concrete slabs and foundations – 10,000m3 - crushed and re-used as granular material on site.
- Demolition – below ground hardstandings and Roads – Blacktop and Concrete – 5,000m3 - crushed and re-used as granular material on site.
- Demolition – below ground hardstandings and roads – granular foundations – 5,000m3 - excavated and re-used as granular material on site.

Note: quantities entered are "estimated" – to be calculated as design progresses.

2.3 Waste materials for off-site disposal during construction

The principal off-site disposal elements and proposals for disposal are set out in Appendix "A" Section 3.0 which will be developed as design progresses

2.4 Imported materials to be used during construction

Details of the principal categories showing the nature, type and quantity of material to be imported on-site during DTC/ SFA/new roads & ABP construction for each of the main projects will be sourced as follow:

2.4.1 Defence Technical College

Bulk fill material – So as to avoid imported common fill the earthworks are being designed with the objective of achieving a balance. Finished levels in non critical areas (e.g. landscape areas, sports fields and Field Training Areas) will be designed to provide flexibility in fill requirements.

Granular Material – whilst there is approximately 100,000 m3 of granular material required (as capping layer beneath roads, paths and car parks, granular material below foundations and sub-base), it is anticipated that approximately 60% of requirement will be won from demolition of the existing buildings, roads and hardstandings on site. Such arisings will be crushed as required and stockpiled in suitable areas for later re-use.

Concrete – Approximately 30,000m3 of concrete will be used in the construction works which will either be obtained from local ready mixed plants or the aggregates will be imported from local quarries/cement suppliers and mixed on site. The decision to import and site batch or use ready mixed from local suppliers will be dependant on the final quantities and programme which will not be available until the design is more advanced.

Category	Approx Quantity- m3	Likely % from Demolition	Source if not Demolition Arising
Fill material	0		Site Excavations - balance
Granular Fill - e.g Capping Material & Sub-base	100,000	60%	Imported from local quarries
Surplus Excavated Material	0	0	Site Balance

2.4.2 Service Families' Accommodation

Category	Approx Quantity- m3	Likely % from Demolition	Source if not Demolition Arising
Fill material	0		Site Excavations - balance
Granular Fill - e.g Capping Material & Sub-base	30,000	0	Imported from local quarries
Surplus Excavated Material	0	0	Site Balance

2.4.3 New Roads

Category	Approx Quantity- m3	Likely % from Demolition	Source if not Demolition Arising
Fill material	0		Site Excavations - balance
Granular Fill - e.g Capping Material & Sub-base	15, 000	0	Imported from local quarries
Surplus Excavated Material	0	0	Site Balance

2.4.4 Aerospace Business Park

Category	Approx Quantity- m3	Likely % from Demolition	Source if not Demolition Arising
Fill material	0		Site Excavations - balance
Granular Fill - e.g Capping Material & Sub-base	30,000	0	Imported from local quarries
Surplus Excavated Material	0	0	Site Balance

2.5 Identification of all fuels, oils and chemical storage facilities during construction

Fuels, oils and chemicals storage facilities will be in accordance with the Appendix C - Outline Construction Environment Management Plan and Appendix D - Draft Environmental Aspects and Impacts Control Register.

Fuels, oils and chemicals will be stored in the contractors and sub-contractors compounds. The location of compounds are as below;

2.5.1 Defence Technical College

Indicated on drawing No's SA-C0xxx0SK-xxx-LO-x-0037 – Indicative Site Logistics Phase 1 & SA-C0xxx0SK-xxx-LO-x-0038 - Indicative Site Logistics Phases 2 & 3

2.5.2 Service Families' Accommodation

Designs are not yet sufficiently developed to identify locations of site compounds but they will be sited adjacent to site access onto public highway in a convenient location for execution of the works.

2.5.3 New Roads

To be located by the construction contractor when procured.

2.5.4 Aerospace Business Park

Designs are not yet sufficiently developed to identify locations of site compounds but they will be sited adjacent to site access onto public highway in a convenient location for execution of the works.

2.6 Details of surface water drainage arrangements to be used/installed during construction

Construction stage drainage strategies and designs will be developed in accordance with the principles set out in Appendix D - Draft Environmental Aspects and Impacts Control Register - Section 1.3 – Water: Surface and Groundwater. In general no drainage will be discharged without passing through silt traps, silt busters or the like. Silt retention devices will be regularly cleaned out to maintain proper function. All fuel, oils and chemicals storage facilities will be adequately bunded to ensure any spillage is contained and contamination of surface water is prevented.

2.7 Details of measures to ensure no polluting discharge

Details of measures to ensure no polluting discharge from DTC haul roads will be developed in parallel with preceding item in accordance with the principals set out in Appendix "C" Outline Construction Environment Management Plan and Appendix "D" Section 1.3 – Water: Surface and Groundwater.

2.8 Proposals for mitigation of construction noise

Once design details are further advanced detailed proposals for mitigation of noise at the various construction sites will be developed in accordance with the principals set out in Appendix C - Outline Construction Environment Management Plan and Appendix D - Draft Environmental Aspects and Impacts Control Register - Section 1.1 – Noise
It is envisaged that estimates of likely construction noise and mitigation measures will be available for discussion with the EHO during Summer 2009.

2.9 Proposals for mitigation of dust and smoke during construction

Once design details are further advanced detailed proposals for

mitigation of dust and smoke will be developed in accordance with the principals set out in Appendix C - Outline Construction Environment Management Plan and Appendix D - Draft Environmental Aspects and Impacts Control Register Section 1.2 – Dust and Air Quality. In general this will include;

- No burning of materials on site – re-cycled or disposed to authorised disposal facility
- Dust will be controlled in the first instance by providing and maintaining good quality site roads (where possible utilising either existing roads {in the case of DTC and ABP} or by installing permanent roads early) which are regularly cleaned and/or regraded. In periods of dry weather haul roads will be watered.

2.10 Proposals for mitigating mud on surrounding roads during construction

Appendix C - Outline Construction Environment Management Plan and Appendix D - Draft Environmental Aspects and Impacts Control Register - Section 1.5 – Traffic, sets out proposals for preventing mud on roads both within the construction sites and on the surrounding public roads. These proposals will be developed by each of the main contractors to suit the individual site scenarios. The basic strategy is firstly to reduce mud on site generally by having good quality site roads (where possible utilising existing and/or new permanent roads) for safety and production efficiency and then to install wheel wash facilities (together with appropriate silt trap facilities) at the exits from sites.

2.11 Proposals for dealing with any ecological, archaeological, or contamination issues during construction

The Ecological, Archaeological and Contamination Mitigation Plans are currently being developed to address issues identified from the Environmental surveys undertaken. A Construction Ecological Mitigation Plan will be developed in conjunction with the Environmental Impact Assessment and the project ecologist.

Archaeological (by Entec) and Contamination/Remediation Mitigation Plans (by Parsons Brinkerhoff/Pell Frischmann) are currently being developed for each construction site.

2.12 Proposed construction working hours

It is proposed that all sites (DTC, SFA, NAR/EBR, Gileston Old Mill re-alignment, B4265 St Athan Unction improvement & ABP) adopt the following working hours which are similar to those within the DARA “Red Dragon” building construction contract.:

Mondays – Saturdays 07:00 to 19:00
Sundays – only non noise generating works as below.

Only routine maintenance works or works inside buildings (eg decorating and carpet laying) neither of which would generate high noise levels, would be carried out on Sundays.

Any works that are required to be carried out outside of the above working hours will only be undertaken after consultation with the Local Authority Environmental Health Officer and local residents through established channels.

3.0 Construction Logistics

3.1 Construction Methods

3.1.1 Defence Technical College

New build construction activities will be undertaken across the DTC area, together with refurbishment works to the existing DARA and Picketston hangars. Traditional construction methods will be supplemented where possible with modern methods of construction including modular SLA buildings, steel or concrete structural frame, precast or unitary cladding, sandwich metal and/or rain screen cladding systems, curtain walling/patent glazing and prefabricated / modular building services and plant rooms.

The locations of site office, welfare and compounds are shown drawings:

SA-C0xxx0SK-xxx-LO-x-0037 - Site Logistics Phase 1
SA-C0xxx0SK-xxx-LO-x-0038 -Site Logistics Phases 2 & 3

Where possible site accommodation will be located within existing buildings and supplemented with temporary porta-cabins or modular buildings. Car parking will utilise existing hardstandings and or new permanent car parks constructed early.

Generally materials will be delivered on a just in time basis and stored short term locally to individual buildings or work fronts, where bulk materials are delivered that are weather susceptible, these will be stored within existing hangers (Picketston & DARA) and distributed around site when required.

To accommodate the overall expanse of the site a number of temporary stores and waste recycling stations will be set up around the site, where construction waste will be deposited, sorted for recycling before collected and transportation to the appropriate off site recycling centres.

3.1.2 New Roads

The Northern Access entails construction of a new road on a greenfield site to provide good access from the B4265 at Boverton through to ABP and DTC. Traditional road construction methods will be employed with bulk earthworks (a significant proportion of which will be in rock), bridge construction over Llanmaes Brook, drainage, carriageway construction and landscaping being the major activities. Any surplus excavation from the Northern Access Road will be taken by road (exiting at the new junction with B4265) to the ABP South of the runway where it will be used to reduce a deficit of fill material thereby avoiding use of imported fill material and reducing road haulage.

The online upgrading/widening of the Eglwys Brewis Road will be undertaken in 2 parts. The first part from the new ABP entrance (i.e. eastern end of Northern Access Road) will be constructed at the same time as the Northern Access Road to ensure earliest possible upgraded road access to the new DTC construction entrance at Picketston. This online widening and re-alignment work will be carried half carriageway at a time working under protection of single way shuttle traffic lights. Once the first part is complete the second part will follow on from DTC Gate 2 (construction entrance) around to DTC Gate 1 at Eglwys Brewis working half carriageway at a time under protection of single way shuttle traffic lights. This work will make due allowance for continuity of access to the dwellings at Picketston and Picketston Close.

It is anticipated that the site compound for both NAR & EBR will be at Picketston west where the eastern end of new road intersects with the existing Eglwys Brewis Road thus providing good road access from the commencement of construction activity.

The Gileston Old Mill and St Athan B4265 junction improvement works will be undertaken using traditional construction methods for this type and size of work. Any surplus excavated material will be incorporated into the general filling requirements in the southern part of the ABP.

3.1.3 Service Families' Accommodation

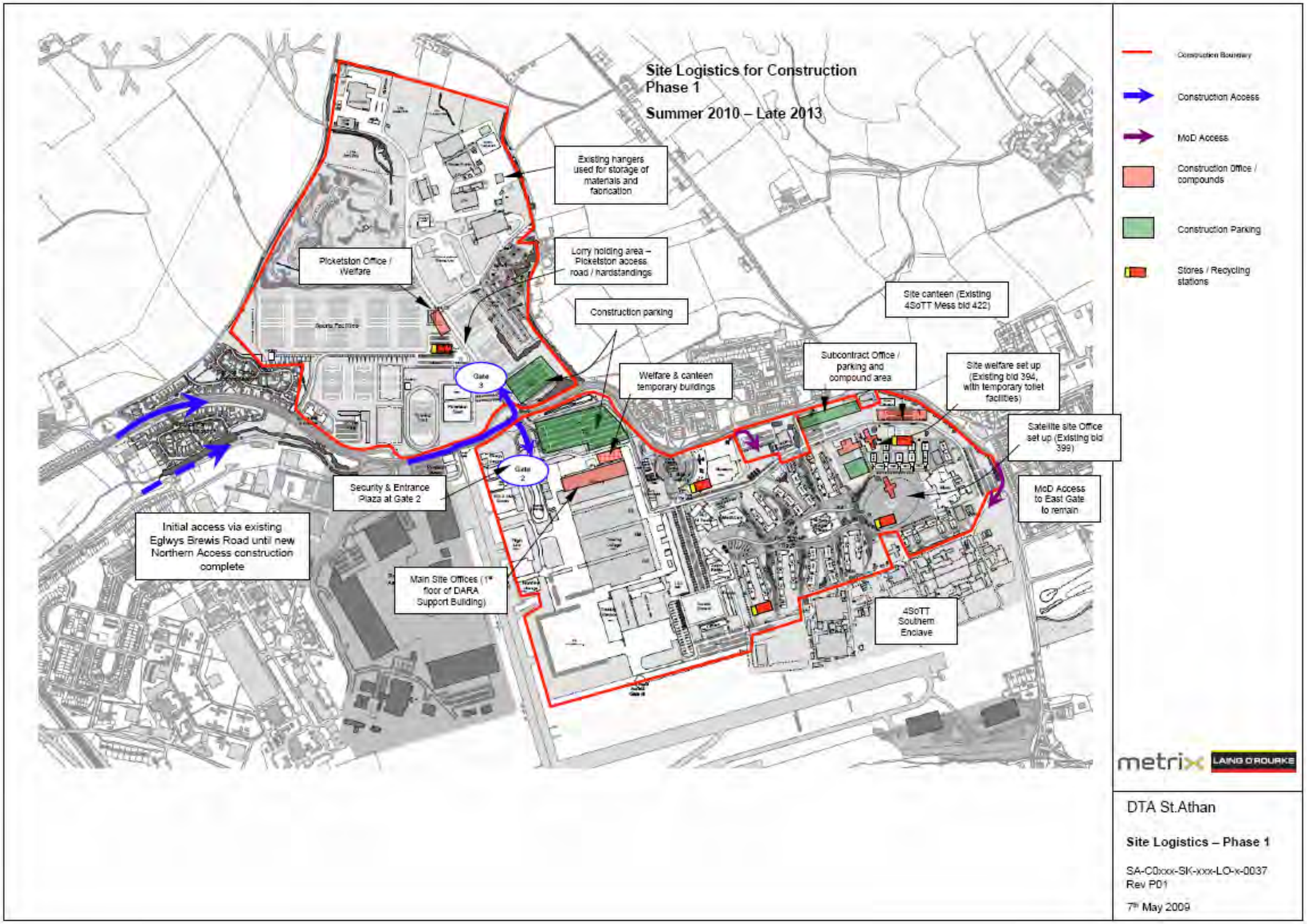
This work requires construction of approximately 500 new Service Families' Accommodation units to provide living accommodation for the Military Staff required to support the Metrix staff running the new DTC. These houses will be built on sites identified at the Old Stadium/Golf Course area, Picketston Sites north and south of the new Northern Access Road and Tremains Farm.

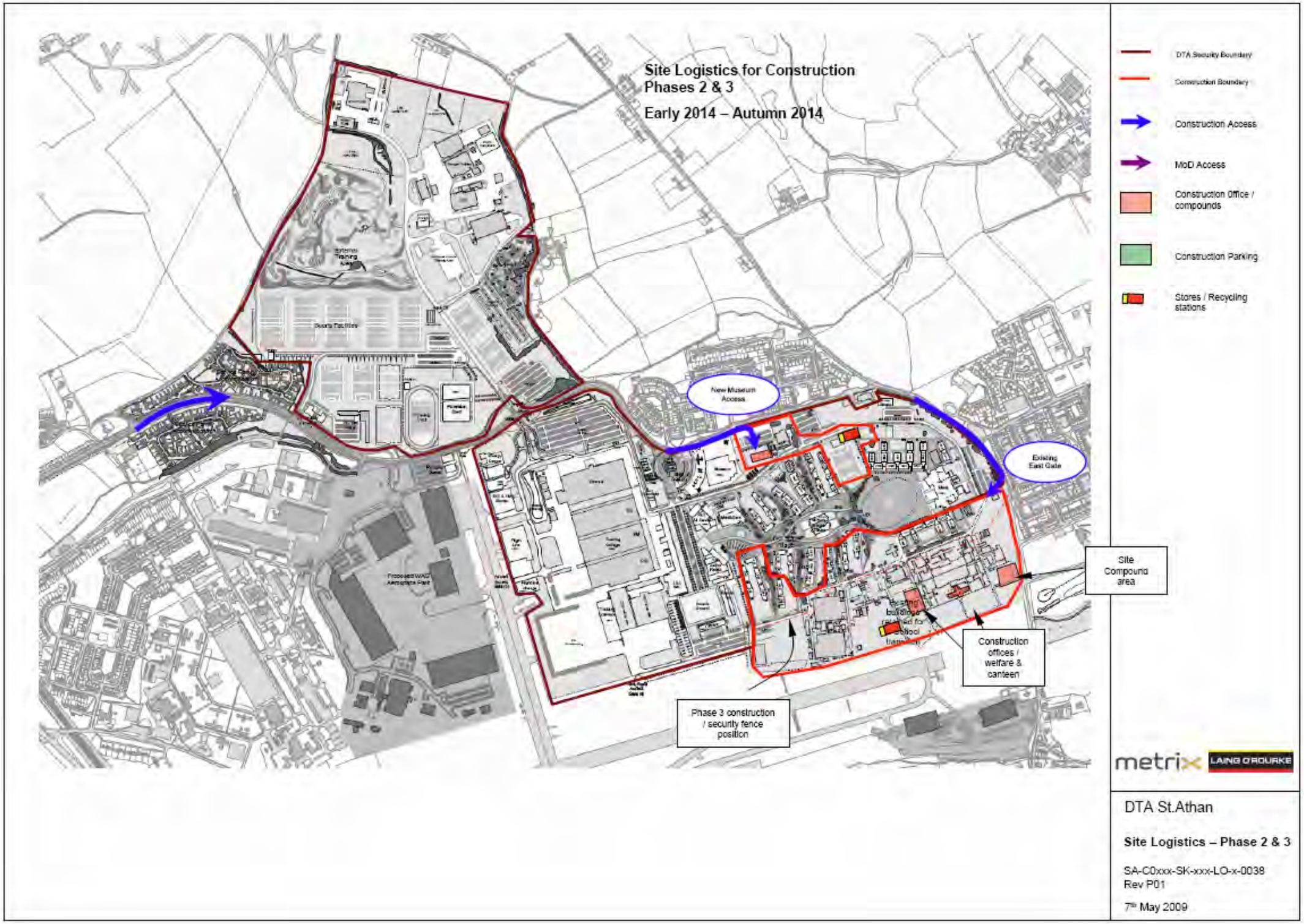
It is envisaged that largely traditional house building construction will be employed, although every opportunity will be taken to use modern construction methods such as pre-fabricated elemental construction of internal shell and roofs. Each of the sites will be set-up individually with its own site compound adjacent to the entrance onto the public highway.

3.1.4 Aerospace Business Park

The Aerospace Business Park work is envisaged to be carried out in 3 Phases. Each Phase comprises new build or existing building refurbishment works to provide aviation related business park industrial units and associated office accommodation. Batslays Farmhouse will also be re-furbished to provide a Welsh Assembly Government marketing suite for the site.

Modern construction methods will be utilised to maximise off-site pre-fabrication activity thus reducing the onsite workforce requirements and increasing certainty of delivery. The main activities in each phase will be site earthworks and preparatory works, drainage, structural steelwork, cladding and roofing, floor laying, internal fit-out works, access road and car parking works, new aircraft apron and taxiway construction and landscaping works.


Site Logistics for Construction Phase 1
Summer 2010 – Late 2013
Existing hangers used for storage of materials and fabrication
Lorry holding area – Picketston access road / hardstandings
Picketston Office / Welfare
Construction parking
Site canteen (Existing 4SoTT Mess bld 422)
Subcontract Office / parking and compound area
Site welfare set up (Existing bld 394, with temporary toilet facilities)
Welfare & canteen temporary buildings
Satellite site Office set up (Existing bld 399)
Gate 3
Gate 2
Security & Entrance Plaza at Gate 2
McD Access to East Gate to remain
Initial access via existing Eglwys Brewis Road until new Northern Access construction complete
Main Site Offices (1st floor of DARA Support Building)
4SoTT Southern Enclave
Construction Boundary
Construction Access
MoD Access
Construction Office / compounds
Construction Parking
Stores / Recycling stations
metrix
LAING O'ROURKE
DTA St.Athan
Site Logistics – Phase 1
SA-C0xxx-SK-xxx-LO-x-0037
Rev P01
7th May 2009


Site Logistics for Construction
Phases 2 & 3
Early 2014 – Autumn 2014
New Museum Access
Existing East Gate
Site Compound area
Construction offices / welfare & canteen
Phase 3 construction / security fence position
DTA Security Boundary
Construction Boundary
Construction Access
MoD Access
Construction Office / compounds
Construction Parking
Stores / Recycling stations
metrix
LAING O'ROURKE
DTA St.Athan
Site Logistics – Phase 2 & 3
SA-C0xxx-SK-xxx-LO-x-0038
Rev P01
7th May 2009

3.2 Site Access & Logistics

3.2.1 Access to the St Athan General Area - B4265 at Boverton

Access to the B4265 at Boverton will utilise one of the following routes;

From the East - M4 Junction 33, along the A4232 to Culverhouse Cross and then along the A4050/A4226 onto the B4265 to Boverton. This will be the main route for supplies/workforce with any local, Cardiff or Barry area traffic joining at an appropriate point along the route. An alternative route will be from Culverhouse Cross westwards along the A48 to Bonvillston and down the A 4226 to Waycock Cross and then westwards along the A 4226 and onto the B4265.

From the West – A48 Bridgend, onto B4265 to Boverton. This will be a subsidiary route mainly used by a minority portion of the workforce travelling to and from DTC Site, although a proportion of deliveries will also use this route to site.

From the North – A 4222 to A48 Cowbridge, along B4270 to Llantwitt Major By-Pass and onto B4265 to Boverton. Again this route will be primarily used by a minority proportion of the workforce travelling to and from DTC Site, but whilst it will be discouraged through commercial supply contracts, it can be envisaged that a small proportion of LGV (predominately vans) will probably use this route.

3.2.2 Use of Northern Access Road

The Northern Access Road runs from a new junction to be formed on the B4265 just west of Boverton directly eastwards to a point where it intersects the existing Eglwys Brewis Road just west of the existing Picketston Gate/Aircraft crossing point. Once completed the Northern Access Road and associated Eglwys Brewis Road upgrade will provide construction access to the DTC, ABP (Phases 1 and 2) and SFA at Tremains Farm and Picketston Sites.

It is envisaged that the Northern Access Road will be constructed and available for DTC/ABP/SFA construction traffic to access respective sites (as opposed to using existing Eglwys Brewis Road) approximately 12 months after commencement of main DTC construction works. With main DTC works (as opposed to enabling works – Re-location of 4 School, Utilities diversions and reinforcement and Demolition works) currently programmed to commence on Site Summer 2010 this means that the Northern Access would be open to DTC/ABP/SFA construction traffic use Quarter 3 2011. Meantime construction traffic accessing these sites would do so via the existing Eglwys Brewis Road which will be upgraded to provide HGV vehicle passing points and improved sight lines together with edge of carriageway strengthening as appropriate to provide full running surface width.

Construction Traffic for the SFA Golf Course site will access that site from the B4265 through St Athans village until such time that the Northern Access and Eglwys Brewis Road upgrades are complete when access from the west may switch to that route. The SFA at the Golf Course site is expected to commence in the 2nd quarter of 2011 and be complete by the end of the 2nd quarter of 2014.
Suitable signs will be erected at the B4265 indicating that (other than for the SFA Golf Course site) Construction Access through St Athans village is not available for DTC/SFA/ABP delivery vehicles. Suppliers and Sub-Contractors will be made aware of the delivery route requirements which will be written into their purchase/sub-contract orders.

3.2.3 Defence Technical College

The general strategy is that deliveries will arrive directly from the manufacturers/suppliers and once they have been security cleared at the entrance to site they will be directed (or if appropriate, escorted) to lay down / storage areas adjacent to the point of use. These storage areas will be adjacent to the temporary site road network for access and will either utilise existing hardstandings or temporary will be created.

Where it is not possible to direct deliver and store (or desirable from a point of view of protection from the elements, length of storage time, availability of storage space or security) one of the following will occur;

- Goods that can conveniently be stored on articulated trailers will be held in the “holding trailer park” which will utilise the proposed permanent FM car park which is situated just north of the Picketston Gate (Gate 2), or

- Where goods need to be stored indoors as proviso above either part of existing DSG hangar will be utilised (dependant on programme availability) or one of the existing buildings at Picketston.

Package Contractors utilising using either of the alternatives above will then transport the goods to point of use/store at a convenient time to suit programme. These arrangements will particularly allow 3 - 4 days modular SLA units to be stored at site so as to smooth out any delivery/erection conflicts.

DTC Site Access from the B4265 at Boverton to Site will initially, until the new Northern Access Road is available for construction traffic, be from the existing Boverton Traffic lights along the existing Eglwys Brewis Road to the existing Picketston/DSG Gate (DTC Gate 2) and onto site utilising 2 security controlled access points – one to the north for Picketston Site and one to the south for main DTC East Camp Site.

Once the new Northern Access Road is opened to public and construction traffic – anticipated to be 3rd Quarter 2011 – (requirement for construction traffic dictated by commencement of those deliveries which are unable to use existing restricted height railway bridge and/or any restrictions on use of existing Eglwys Brewis Road imposed by Planning Authority) access will be from the new junction with the B4265 along the new Northern Access Road to the Picketston/DSG Gate described above.

During the above access regimes the Eglwys Brewis Road upgrading works will be undertaken as far east as DTC Gate 1 and the new Museum access. It is also intended that there will also be a temporary construction worker’s car park access off Eglwys Brewis Road in the vicinity of the existing Medical & Dental building with access to the DTC Site by pedestrian gate and swipe card/features recognition control.
From commencement on site through the main DTC site works no construction traffic will be allowed on Cowbridge Road through St Athan village to the B4265 junction south of St Athan. This will be controlled by signage, design of junctions and monitoring of access onto DTC Site.

Once DTC main construction works are complete and DTC Site is progressively occupied, construction access to complete outstanding works (mainly car parks and landscaping of approx 6 months duration) will be along Eglwys Brewis Road and a short section of Cowbridge Road to the existing East Gate and onto DTC Site. As above, no traffic will be permitted through St Athans village from the East Gate entrance to the junction with the B4265 south of St Athan.

3.2.4 New Roads

In common with DTC the general strategy for New Roads, SFA and ABP will be to deliver direct to the point of use following security clearance at the entrance(s) to the particular site.
Where this is not possible goods will be stored temporarily either

as open storage for goods that would not degrade or otherwise in temporary dry and secure storage.

3.2.5 SFA Site Access – Tremains Farm Site

It is not anticipated that access to Tremains Farm site will be required prior to the Northern Access being sufficiently complete to provide access. In the unlikely event that access were required sooner it is proposed that access would be from the existing Boverton traffic lights along Eglwys Brewis Road to a point east of the railway bridge where there is an existing field gate access. Since the whole of the Northern Access Road is available for all construction traffic by early 3rd Quarter 2011 and Tremains SFA is not anticipated to commence until 2nd Quarter 2011 the potential amount of traffic requiring early access via existing Eglwys Brewis Road is small.

Once the new Northern Access Road is available for construction traffic usage (currently anticipated to be early 3rd Quarter 2011) access will be from the new junction with the B4265 along the new Northern Access Road (running on a temporary wearing course) to the Tremains SFA site entrance.

3.2.6 SFA Site Access – Picketston Sites

Initially, until the new Northern Access Road is available for construction traffic, access to SFA Picketston sites will be from the existing Boverton traffic lights along Eglwys Brewis Road to a temporary entrance to the Picketston Sites. Since the SFA works at these sites do not commence until 2nd Quarter 2011 and the Northern Access is anticipated to be available for construction traffic use by 3rd Quarter 2011, this will only create a small amount of additional traffic for a short period of time, when work on these SFA sites will mainly comprise site clearance and on site earthworks.

Once the new Northern Access Road is available for construction traffic usage (anticipated to be Q3 2011) access will be from the new junction with the B4265 along the new Northern Access Road (running on a temporary wearing course) to the Picketston SFA entrances off the NAR.

At an appropriate time, prior to opening of the new DTC facility, the Northern Access Road will be completed (including new junctions with existing side roads) and opened to public traffic. From that point, the site access will be along the publicly used Northern Access Road to the Picketston SFA site entrances as described above.

3.2.7 SFA Site Access – Golf Course Site

This is the largest SFA site and accordingly it needs to commence earlier than the other sites to achieve required completion date. Accordingly it is proposed that until the Northern Access Road is available for construction traffic usage (anticipated to be 3rd Quarter 2011) access to the Golf Course Site be via St Athans Village.

Once the new Northern Access Road is available for construction traffic usage (anticipated to be early 3rd Quarter2011) access to this SFA site would be from the new junction with the B4265 along the new Northern Access Road (running on a temporary wearing course) on to the upgraded Eglwys Brewis Road to it's intersection with Cowbridge Road.

3.2.8 ABP Site Access – North of Runway - Phase 1, 2 and 3

Until such time that the Northern Access Road is available for construction traffic usage (anticipated to be 3rd Quarter 2011) access to the ABP north of runway site will be via the existing West Camp gate.

Once the new Northern Access Road is available for construction traffic usage (anticipated to be early 3rd Quarter 2011) access to this ABP site will be from the new junction with the B4265 along the new Northern Access Road (running on a temporary wearing course) on to the upgraded Eglwys Brewis Road to the ABP North of Runway Site entrance at Picketston West.

3.2.9 ABP Site Access – South of Runway – Phases 1, 2 and 3

To accommodate surplus excavated material from the new Northern Access Rd and the Gileston Old Mill and St Athan B4265 Junction Improvement the existing "C" class road which leads from the B4265 to Batslays Farm will be improved such that access is available from north of the existing railway bridge onto the site.

For any other works during Phase 1 and 2 access to ABP South will be obtained from ABP North as item 2.5 above with an Air Traffic controlled crossing of the western end of the runway. As part of the proposals for ABP South in Phase 3 a new permanent junction with the B4265 will be constructed which will then be utilised by construction traffic gaining access to ABP South.

3.3 Proposed location of any temporary bunds during construction

3.3.1 Defence Technical College

There will be a requirement to store topsoil, crushed demolition arisings, excavated material and rock excavation awaiting processing. These stockpiles will generally be sited around the perimeter of the site; at present these stockpiles will likely be on the South of East Camp (facing runway) or at Picketston. Once the design has developed and quantities have been reliably calculated consideration will be given (in liaison with environmental team) to stockpiling around the eastern and northern East Camp boundaries to provide a visual barrier to construction activities. Any stockpiles of granular material will be suitably fenced to prevent entry by protected species.

3.3.2 Roads, ABP & SFA

There will be a requirement to store topsoil, crushed demolition arisings, excavated material and rock excavation awaiting processing. These stockpiles will generally be sited around the perimeter of the site in question. Once the detail design has developed and quantities have been reliably calculated consideration will be given (in liaison with environmental team) to stockpile locations. Where possible any stockpiles will be used to screen construction activity. Any stockpiles of granular material will be suitably fenced to prevent entry by protected species.

3.4 Construction Traffic

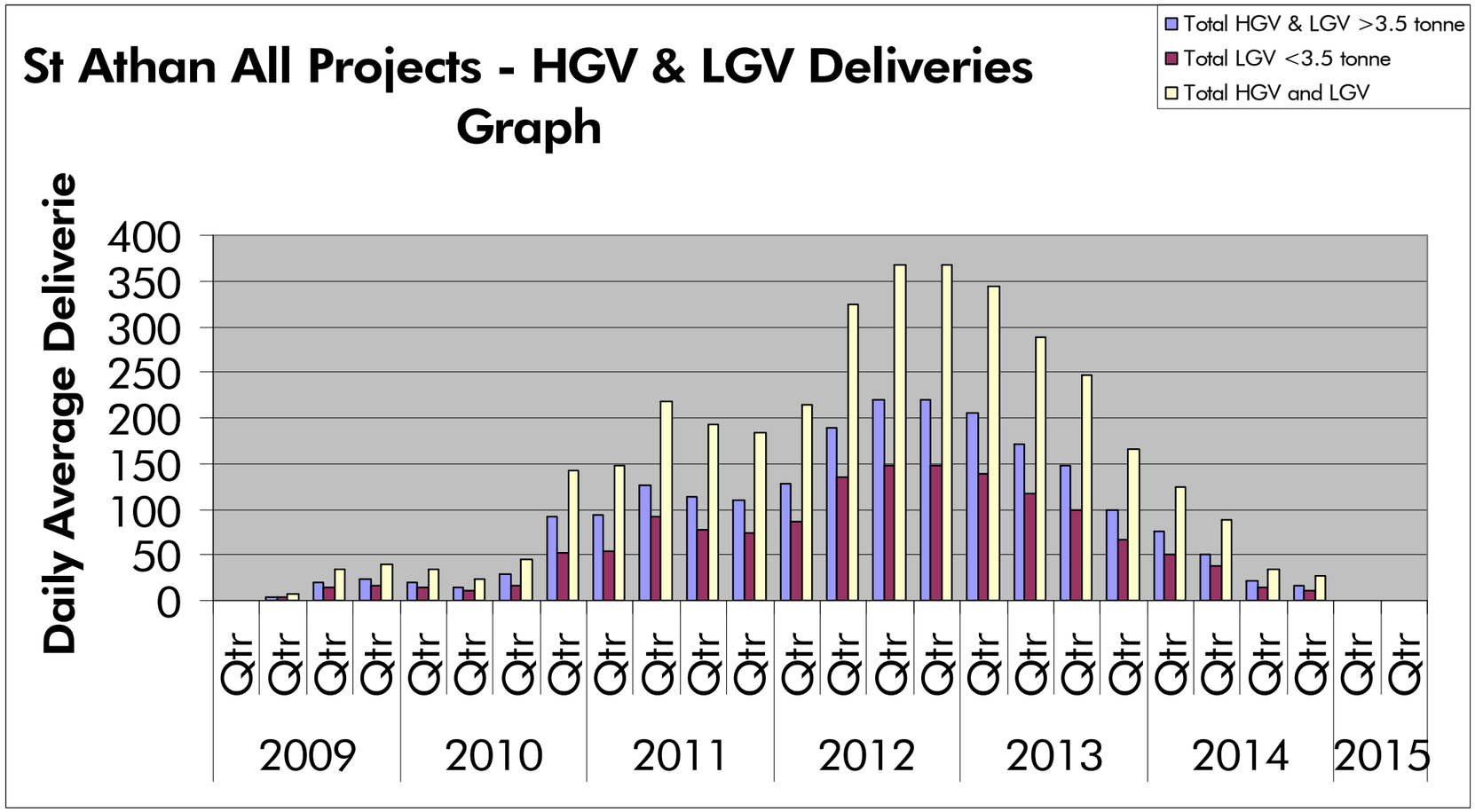
Estimates of construction traffic for both deliveries to Site and construction workforce have been made for all sites and fed into the travel plans. These estimates are provisional and will be reviewed as the design and procurement process proceeds. All estimates are based on average traffic within each quarterly period and the actual traffic on any given day (or period of days) will be dependant on the level of activity at that time.

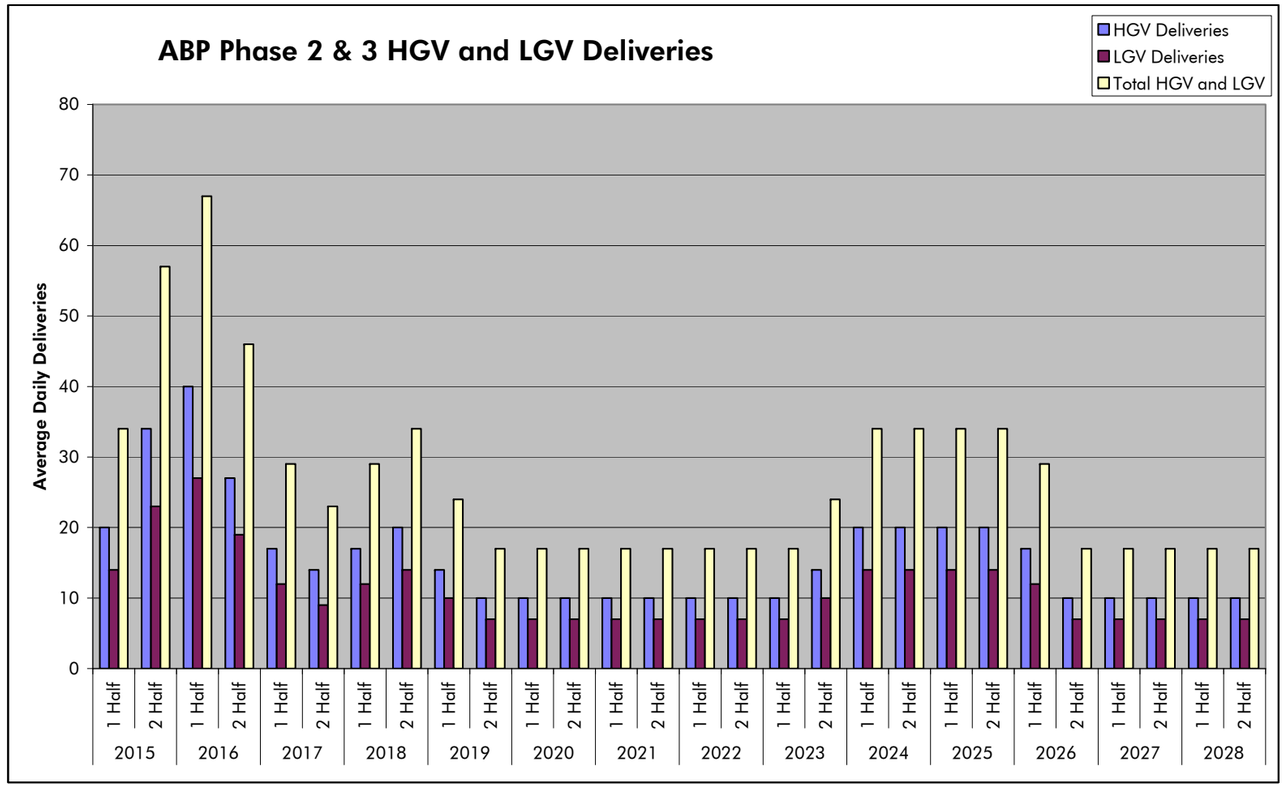
Separate graphs of predicted daily construction delivery traffic averaged over each quarter are included below for;

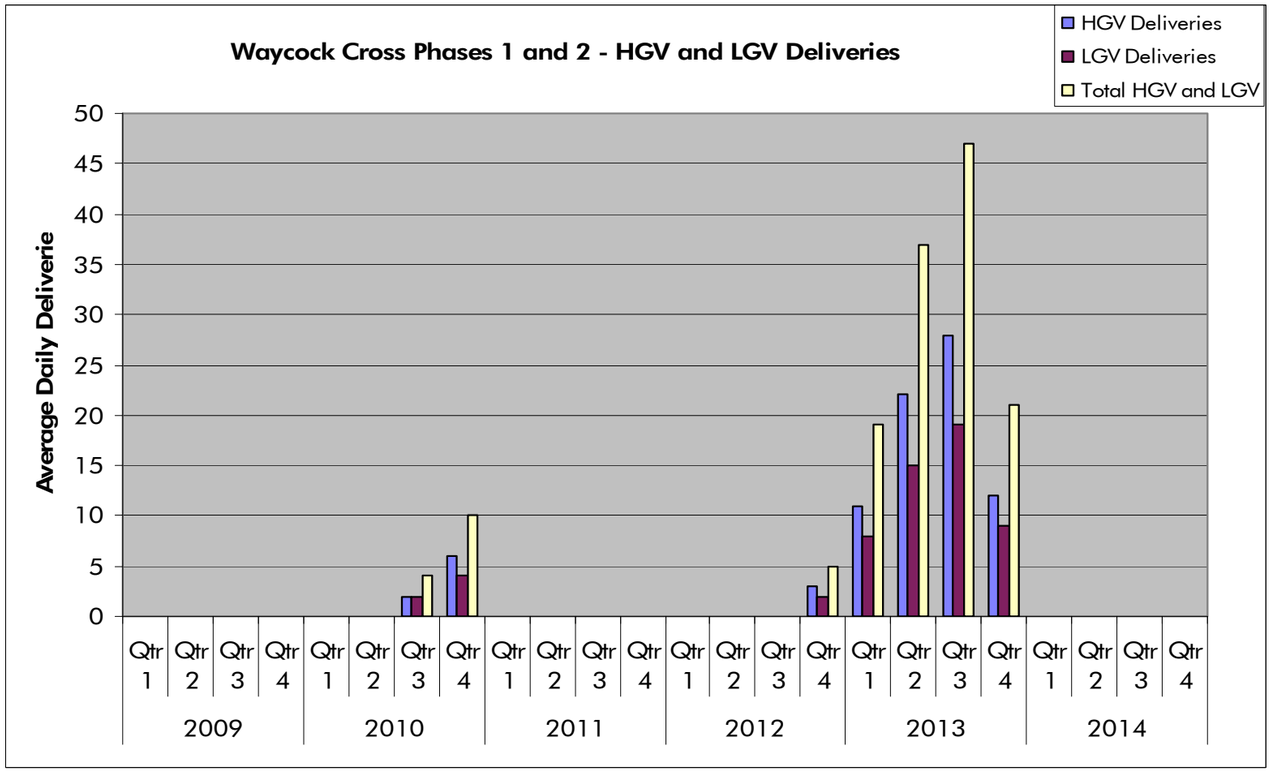
- St Athan All Projects – Early Works, New Roads (NAR, EBR Upgrade, Gileston and St Athan Junction), DTC, SFA and ABP Phase 1.
- ABP Phases 2 and 3.
- Waycock Cross Phases 1 (undertaken to facilitate St Athan "All Projects" construction traffic) and Phase 2 (to facilitate St Athan "All Projects" operation development)

All figures indicated represent a 2 way journey – ie onto and off site.

The tables at Appendix E indicate the currently predicted daily deliveries (which have been averaged on a quarterly basis) for each of the above. These predictions are dependant on more detailed review as the design and procurement process develops.




ABP Phase 2 & 3 HGV and LGV Deliveries
HGV Deliveries
LGV Deliveries
Total HGV and LGV
Average Daily Deliveries
0
10
20
30
40
50
60
70
80
1 Half
2 Half
2015
2016
2017
2018
2019
2020
2021
2022
2023
2024
2025
2026
2027
2028


Waycock Cross Phases 1 and 2 - HGV and LGV Deliveries
HGV Deliveries
LGV Deliveries
Total HGV and LGV
Average Daily Deliverie
0
5
10
15
20
25
30
35
40
45
50
Qtr 1
Qtr 2
Qtr 3
Qtr 4
2009
2010
2011
2012
2013
2014

4.0 Demolition

Demolition of the existing buildings on East Camp will be carried out in a number of phases with the initial phases carried out as part of the Enabling Works for the Defence Technical College and the final smaller phases of works completed through out the main DTC construction period.

The buildings to be demolished for the Defence Training College are listed on the adjacent schedule and the location of buildings along with the demolition phasing strategy is shown on drawing CDC7790 revision P01

The initial demolition Phases 0 to Phase 3 inclusive will provide a clear platform for the main DTC programme to take place and will taken place from 2nd Quarter 2009 to 2nd Quarter 2010,

Phases 4 to 7 will be carried out as 4SoTT transition into the New DTC and main works construction proceeds, commencing 2nd Quarter 2012.

Phase	Building No.	Building Description	Current Occupant	Above Ground Target Demolition Period (incl Asbestos)	Above Ground Demolition Required Complete Date	Area (m²)	COMMENT
0	295	CF GSE OFFICE/WORKSHOP (VACANT)	Vacant	16 wks	31-Aug-10	132	
0	297	AUTOMATIC CAR WASH (VACANT)	Vacant			54	
0	307	POL AND WASTE COMPOUND	Vacant			92	
0	312	TOILET BLOCK?	Vacant			120	Could be used as site compound facility
0	314	VC10 IPT	Vacant			80	Asbestos content likely to floor finish, gaskets & Electrical switchgear
0	318	VACANT	Vacant			1620	
0	333	BELLMAN HANGAR ABDRTF	Vacant			1621	Potential forAsbestos containing gaskets
0	333A	ABDRTF OFFICE	Vacant			550	
0	363	OXYGEN BAY	Vacant			446	Likely Asbestos in ceiling boards
0	376	CREW ROOM (VACANT)	Vacant			70	
0	381	TOILET BLOCK (UNUSED)	Vacant			90	
0	506	RAF POLICE FLIGHT STORES	Vacant			123	
0	507	TAC OPS STORE	Vacant			65	
1	293	PAINT/OIL STORE (P&F)	4SoTT	16 wks	31-Aug-10	100	Asbestos Cement roof coverings
1	296	MT WASHING PLANT	4SoTT			5	Asbestos Cement roof coverings
1	320	AR1 CLIMBING TOWER	4SoTT			138	
1	322	CF STORAGE (VACANT)	4SoTT			29	
1	323	JAGUAR TEST HOUSE	DARA			180	
1	324	CF WORKSHOP	DARA			7200	De-contamination in Phase 0
1	325	CF WORKSHOP TOILET BLOCK	DARA			75	
1	325A	DIST CENTRE	DARA			30	
1	327	TANKER POOL	DARA			86	
1	329	BELLMAN HANGAR MT STORE	DARA			1621	Potential forAsbestos containing gaskets
1	329A	FUEL TANKER HARDSTANDING	DARA			N/A	
1	331	STATIC WATER TANK	SHARED			N/A	
1	336	METS GAS CYLINDER STORE	4SoTT			49	Asbestos Cement roof coverings
1	340B	VGS ACCOMMODATION	HQ AIR CAD			79	
1	377	WORKSHOP/MT	4SoTT			N/A	
1	487	DSS "SE"	DE			36	
1	540	HIMATAFI	DE			842	
1	542	SPS TEST HOUSE	DE			412	
1	553	TRANSFORMER	DE			51	Sub station
2A	305	SU OFFICE (VACANT)	Vacant	16 wks	06-Sep-10	36	
2A	306	OFFICE (VACANT)	Vacant			36	
2A	309	MTT 4STT TOILET BLOCK	4SoTT			36	
2A	328	TEST HOUSE	4SoTT			135	
2A	339	POL STORE/SCRAP METAL	4SoTT			72	
2A	344	METF (GE) WORKSHOPS	4SoTT			4747	
2A	344A	METF (GE) MET STORE	4SoTT			57	
2A	349	ETF CLASSROOMS	4SoTT			210	Asbestos likely to present in Synthetic roof slates
2A	350	TOILET BLOCK (METF (GE))	4SoTT			79	
2A	351		4SoTT			22	
2A	352	MTETF STORE	4SoTT			25	
2A	353	MTMF/ETS WORKSHOP	4SoTT			6029	Likely Asbesos roof below metal profile roof?
2A	353A	METF CREWROOM	4SoTT			N/A	
2A	353B		4SoTT			N/A	
2A	355	TOILET BLOCK (PF&ETF (ET)	4SoTT			93	Synthetic roof slates likely to contain asbestos
2A	378	METF	4SoTT			50	
2A	453	METF ETS CLASSROOM 1	4SoTT			N/A	
2A	454	METF ETS CLASSROOM 2	4SoTT			N/A	
2A	526	SCOUT HUT	4SoTT			267	
2A	532		4SoTT			N/A	
2A	581	CLASSROOM - (P&F)	4SoTT			60	

Asbestos information based on Knight Frank condition survey Jan 2002.

MOD St Athan - Demolition - Building/Phase List

Phase	Building No.	Building Description	Current Occupant	Above Ground Target Demolition Period (incl Asbestos)	Above Ground Demolition Required Complete Date	Area (m²)	COMMENT
2A	704	BOILER HOUSE 21	4SoTT			115	
2A	705	BOILER HOUSE 20	4SoTT			115	
2B	457	4 S OF TT HQ	None			475	
2B	490	ASTROTURF PITCH	4SoTT			2115	
2B	505	E/C WATER BOOSTER SET HOUSE	4SoTT			33	
2B	509	CAMBRIAN CENTRE/POST OFFICE	4SoTT	16 wks	06-Sep-10	726	
2B	510	NAAFI/SERVICE BARBER (SPAR)	4SoTT			200	
2B	519	WATER TOWER (VACANT)	Vacant			165	
2B	521	P ED STORE	4SoTT			18	
2B	354A-354F	GYM,POOL, CHURCH & CINEMA	4SoTT			10792	
2C	78	Flag Poles	4SoTT			N/A	
2C	78A		4SoTT			N/A	
2C	316		4SoTT			N/A	
2C	395	COOK BARRACK BLOCK - 4SOFTT	4SoTT			1018	
2C	396	ROACH BARRACK BLOCK - 4SOFTT	4SoTT			1018	
2C	397	RICE BARRACK BLOCK - 4SOFTT	4SoTT			1018	
2C	398	QUINNELL BARRACK BLOCK- 4SOFTT	4SoTT			1018	
2C	400	SHQ 4STT	4SoTT			1018	
2C	401	ST ATHAN VOL BAND	Band			1018	
2C	407	ELECTRICAL DISTRIBUTION	4SoTT			39	Asbestos marked as being present in building
2C	446	OFFICES - CONTRACT CLEANER (VACANT)	Vacant			70	Asbestos likely to be present
2C	447	SHOP - NEWSAGENT (VACANT)	Vacant	8wks	18-Oct-10	121	Asbestos likely to be present
2C	448	SHOP - P&R TYRECARE	Tyre Centre			67	Asbestos likely to be present
2C	449	OFFICES - CONTRACT CLEANER (VACANT)	Vacant			66	Asbestos likley to be present
2C	450	SHOP - SNACK BAR (VACANT)	Vacant			74	
2C	451	EX BOXING CLUB (VACANT)	Vacant			115	
2C	458	Non-Public GARAGES (NON-PUBLIC)	4SoTT			135	
2C	518	PARADE SQ	4SoTT			N/A	
2C	564	GAS GOVERNOR	4SoTT			N/A	
2C	566	STN STORE (PROM)	4SoTT			287	
2C	567	PUBLIC ADDRESS	4SoTT			N/A	
2C	612	RADIO ACTIVE STORE	4SoTT			N/A	
2C	700	BOILER HOUSE 16	4SoTT			76	
2D	299/300	FUEL PUMPS	DE			50	
2D	303	EGLWYS BREWIS FARMHOUSE	WAG			246	
2D	321	UWAS AIR CREW	UWAS			450	
2D	321A	UWAS CREW ACCOM	UWAS			35	
2D	334	AVTUR COMPOUND FOR UETF	DTSL			94	
2D	338	UWAS STORE	UWAS			85	
2D	340	UWAS HANGAR	UWAS			1621	False ceiling likely to contain Asbestos?
2D	340A	UWAS ADMIN (SOUTH)/VT AEROSPACE (NORTH)	UWAS			402	
2D	345	POL HARDSTANDING	UWAS	8 wks	27-Sep-10	N/A	
2D	348	ENGINE FAC ADOUR WORKSHOP	DSTL			150	Likely to be present in floor tiles & synthetic roof slates
2D	461	GARAGE	WAG			38	
2D	370	UETF	DSTT			200	
2D	486	UWAS MESS	UWAS			223	
2D	506		Vacant				
2D	507		Vacant				
2D	1026	TX/RX TOWER	DARA/AIRFIELD			50	

Asbestos information based on Knight Frank condition survey Jan 2002.
(It does not represent a level 2 Asbestos survey)

2/4

MOD St Athan - Demolition - Building/Phase List

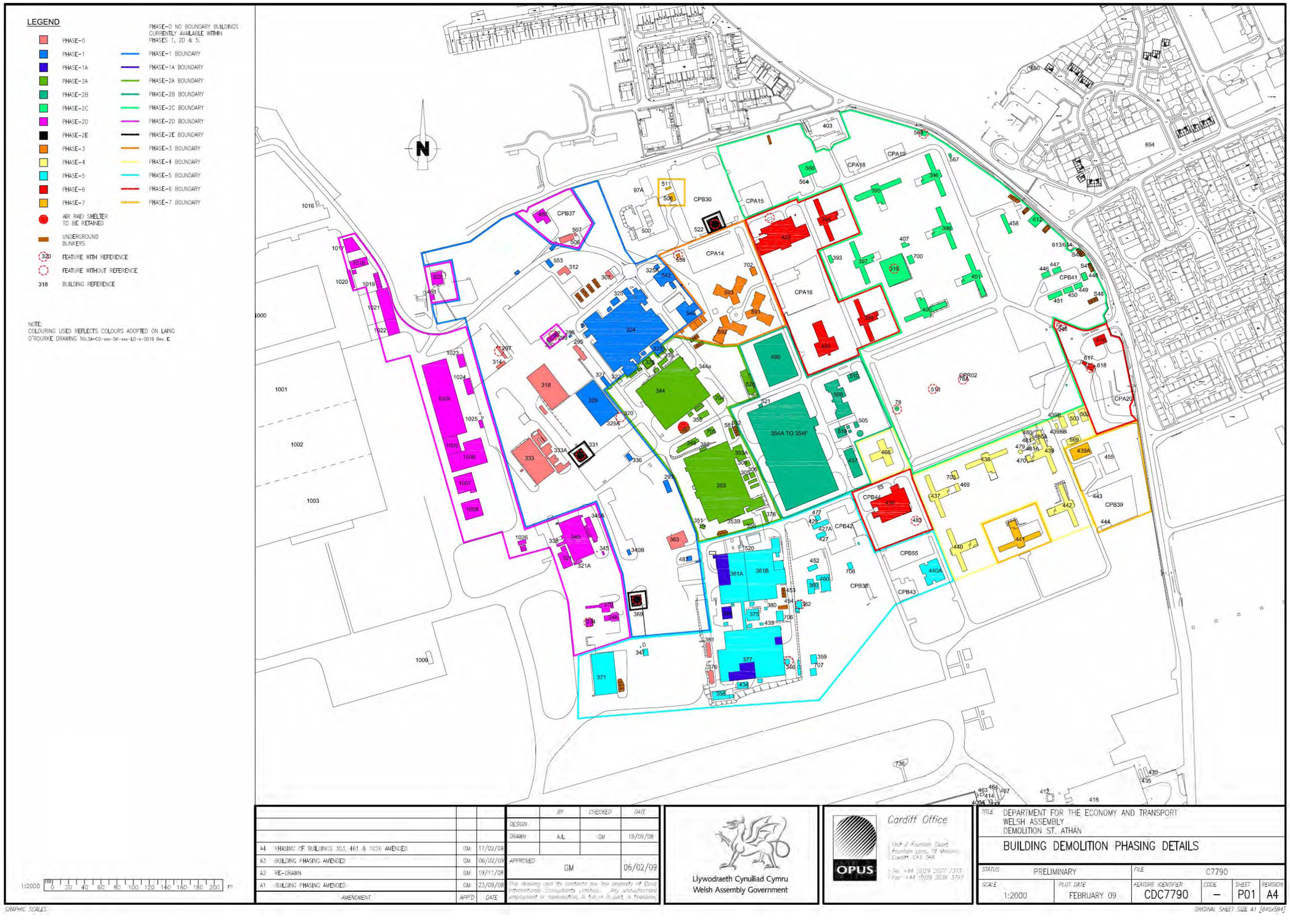
Phase	Building No.	Building Description	Current Occupant	Above Ground Target Demolition Period (incl Asbestos)	Above Ground Demolition Required Complete Date	Area (m²)	COMMENT
2D	858	Picketston Hanger	WAG	12 wks	Aug-11		
2D	853	Ancillary Buildings to Hanger	WAG				
2D	858	Ancillary Buildings to Hanger	WAG				
2D	583	Ancillary Buildings to Hanger	WAG				
2D	252	Ancillary Buildings to Hanger	WAG				
2D	254	Redundant Gate House	WAG				
2E	331	STATIC WATER TANK	Newt Pond	1 wk	01-Jul-10	N/A	
2E	369	STATIC WATER TANK	Newt Pond			202	
2E	522	EWS	Newt Pond			N/A	
2F	1004		DSG	8 wks	30-Oct-10	2933	
2F	1005		DSG			380	
2F	1006		DSG			1200	
2F	1007		DSG			506	
2F	1008		DSG			482	
2F	1018		DSG			213	
2F	1019		DSG			126	
2F	1020		DSG			91	
2F	1021		DSG			547	
2F	1022		DSG			270	
2F	1023		DSG			123	
2F	1024		DSG			154	
2F	1025		DSG			38	
3	538	HV SUB STATION		4wks	01-Aug-11	16	
3	591	KYLE BARRACK BLOCK	4SoTT			655	
3	592	O'REILLY BARRACK BLOCK	4SoTT			655	
3	593	FRENCH BARRACK BLOCK (TRANSIT)	4SoTT			655	
3	702	BOILER HOUSE 22	Redundant			80	
4	437	FORROW BARRACK BLOCK - TDMTF	4SoTT	8wks	01-Sep-12	1018	
4	438	MUTCH BARRACK BLOCK	NDT			1018	
4	439	NDTS EX BARRACK BLOCK	NDT			1018	
4	439B	NDT MINI HANGAR	NDT			99	
4	439BB	RN SAMCO NDT TRG	NDT			19	
4	440	PERKINS BLOCK AEP 4STT	4SoTT			1018	
4	442	RAF POLICE/RAF REGT	RAF Police			1018	
4	468	WILLIAMS BLOCK (WINGS 7/8/9 (FEMALE)	4SoTT			518	
4	469	PLANT ROOM	4SoTT			55	
4	470	NDTS External STORE ADJ TO 439	NDT			39	
4	479	NDTS ISOTOPE STORE ADJ 439	NDT			20	
4	480	NDTS X-RAY CABIN ADJ TO 439	NDT			10	
4	480A	NDTS X-RAY CABIN ADJ TO 439	NDT			19	
4	481	NDTS PROCESSING CABIN ADJ 439	NDT			10	
4	481A	NDTS PROCESSING CABIN ADJ 439	NDT			19	
4	502	ATC SLEEP HUTS	Air Cadets			137	
4	503	ATC SLEEP HUTS	Air Cadets			137	
4	569	ATC 2300 SQN	Air Cadets			134	
4	703	BOILER HOUSE 15	4SoTT			76	

Asbestos information based on Knight Frank condition survey Jan 2002.
(It does not represent a level 2 Asbestos survey)

3/4

MOD St Athan - Demolition - Building/Phase List

Phase	Building No.	Building Description	Current Occupant	Above Ground Target Demolition Period (incl Asbestos)	Above Ground Demolition Required Complete Date	Area (m²)	COMMENT
5	346	DISTRIBUTION CENTRE SS	4SoTT			41	
5	358	EX-CHEMICAL STORE FOR CCP (VACANT)	4SoTT			205	
5	359	EX-POL STORE (VACANT)	4SoTT			81	Asbestos Cement roof coverings
5	360	ETF CLASSROOMS	4SoTT			199	
5	361	ETF WORKSHOPS(E)/SU SUPPLY &TMEC(W)	4SoTT			5205	Likely synthetic slate roof + fire resistant boards+ potential to services.
5	364	ADOUR FUEL ACCESSORIES TEST	4SoTT			201	Asbestos likely in panels above doors
5	371	GLIDING SCHOOL HANGAR	4SoTT			1609	
5	375	CREWROOM/LOCKER ROOM (ETF)	4SoTT			220	
5	377	WORKSHOP/MT	4SoTT			5930	Likley Asbestos present in synthetic roof coverings + fire restant boards + services
5	380	COMPRESSOR HOUSE	4SoTT			10	Asbestos Cement roof coverings
5	427	TFM TECH WORKSHOP	4SoTT	8wks	01-May-14	73	Asbestos likely in floor tiles & gaskets
5	429	CONTRACTORS OFFICE/CHURCH STORE	4SoTT			112	Asbestos likely in floor tiles & gaskets
5	433	POL STORE (VACANT)	4SoTT			25	Asbestos Cement roof coverings + lining panels to underside of roof
5	434		4SoTT			149	
5	440A	AEP CLASSROOMS	4SoTT			604	
5	460	ETF CLASSROOM	4SoTT			296	
5	477	WSM GARAGES	4SoTT			39	
5	520	ETF CLASSROOM	4SoTT			192	
5	706	BOILER HOUSE 18	4SoTT			120	
5	707	BOILER HOUSE 17	4SoTT			96	
5	708	BOILER HOUSE 19	4SoTT			100	
6	394	CLAPPEN BARRACK BLOCK - 4SOFTT	4SoTT			1018	
6	399	BOYLE BARRACK BLOCK - 4SOFTT	4SoTT			1018	
6	422	EGLWYS BREWIS AIRMENS MESS	4SoTT			1703	Asbestos likely in heating installation
6	436	SOCIAL CLUB	4SoTT			1486	
6	483	ELECT DIST CENTRE GG	4SoTT	6wks	12-Apr-14	N/A	
6	489	FORCE DEVELOPMENT CENTRE	4SoTT			745	
6	546	EAST GATE PORTACABIN	4SoTT			50	
6	616	EAST CAMP GUARDROOM	4SoTT			193	
6	617	SPEECH BROADCASTING OFFICE	4SoTT			60	
6	618	DIST CENTER AA	4SoTT			120	
~~7~~	~~500~~	~~MEDICAL CENTRE/DENTAL CENTRE~~	~~Med & Dent~~			~~1596~~	
7	97A		Med & Dent	3wks	22-May-14	270	
7	508	RMC AMBULANCE GARAGE	Med & Dent			72	
7	511	RMC BOILER HOUSE/PLANT ROOM	Med & Dent			21	
7	441	MOORSHEAD BLOCK - CLUBS	Club	6wks	22-Jul-14	1018	


LEGEND
PHASE-0
PHASE-1
PHASE-1A
PHASE-2A
PHASE-2B
PHASE-2C
PHASE-2D
PHASE-2E
PHASE-3
PHASE-4
PHASE-5
PHASE-6
PHASE-7
PHASE-0 NO BOUNDARY BUILDINGS CURRENTLY AVAILABLE WITHIN PHASES 1, 2D & 5.
PHASE-1 BOUNDARY
PHASE-1A BOUNDARY
PHASE-2A BOUNDARY
PHASE-2B BOUNDARY
PHASE-2C BOUNDARY
PHASE-2D BOUNDARY
PHASE-2E BOUNDARY
PHASE-3 BOUNDARY
PHASE-4 BOUNDARY
PHASE-5 BOUNDARY
PHASE-6 BOUNDARY
PHASE-7 BOUNDARY
AIR RAID SHELTER TO BE RETAINED
UNDERGROUND BUNKERS
320 FEATURE WITH REFERENCE
FEATURE WITHOUT REFERENCE
318 BUILDING REFERENCE
NOTE:
COLOURING USED REFLECTS COLOURS ADOPTED ON LAING O'ROURKE DRAWING No.SA-C0-xxx-SK-xxx-LO-x-0019 Rev. E
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CPA12
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CPB02
1:2000
GRAPHIC SCALES
A4 PHASING OF BUILDINGS 353, 461 & 1026 AMENDED GM 17/02/09
A3 BUILDING PHASING AMENDED GM 06/02/09
A2 RE-DRAWN GM 19/11/08
A1 BUILDING PHASING AMENDED GM 23/09/08
AMENDMENT APP'D DATE
DESIGN
DRAWN AJL GM 19/09/08
APPROVED GM 06/02/09
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TITLE DEPARTMENT FOR THE ECONOMY AND TRANSPORT
WELSH ASSEMBLY
DEMOLITION ST. ATHAN
BUILDING DEMOLITION PHASING DETAILS
STATUS PRELIMINARY
FILE C7790
SCALE 1:2000
PLOT DATE FEBRUARY 09
FEATURE IDENTIFIER CDC7790
CODE –
SHEET P01
REVISION A4
ORIGINAL SHEET SIZE A1 [841x594]

5.0 Ecological Mitigation Strategy

5.1 Introduction

A full range of Ecological surveys have been undertaken by Capita who have been engaged by Welsh Assembly Government. The primary issues are the presence of newts in 3 disused Emergency Water Storage tanks on East Camp and the presence of bat roosts in approx 12 buildings on East Camp and at a number of buildings on West camp and at Batslays farm. Provisions are also required for Dormouse, Badger, Otter as well as breeding birds and reptiles.

As part of the EIA a full Mitigation Strategy has been developed. This strategy also identifies the various licences that will need to be obtained from CCW prior to commencement of any works in the vicinity of known ecological assets and/or translocation of habitats.

The Ecological Mitigation Strategy has been developed by Capita Symonds following input by the Principal Contractor regarding proposed phasing, programme and methods for undertaking the various aspects of the DTC works. These mitigation strategies will form the basis of more detailed methodologies that will govern the execution of the works in ecologically sensitive areas. The Ecological Mitigation Strategy and the developed methodologies will be used to support the various licence applications which will need to be made to CCW/Welsh Assembly Government. The grid/table opposite (indicating the various constraints/mitigations for each species) will be populated in consultation with the project ecologist which process in turn will inform the methodologies to be developed for undertaking the works.

	Bats	Newts	Other Ecology	Archaeology	Contam	Likely Mitigation Measures
DTC;						
Demolition						See Notes at 5.2
Utilities						
4 School Works						
Other Early Enabling Works						
Initial Main DTC Works						
Main DTC Works – post species translocation						
SFA;						
Tremains Farm						
Picketston North & South						
Golf Course						
New Roads;						
Northern Access Rd						
Eglwys Brewis Rd Ugrade						
Gileston Old Mill						
Sta Atan B4265 Junction						
ABP;						
North						
South						
Waycock Cross						

5.2 Notes to constraints/mitigation Table

The overall mitigation objective is to provide new habitats as soon as possible (generally dictated by grant of outline planning permission and issue of relevant licences) such that the species in question can be translocated in advance of Main Construction works that might endanger their habitat. So that unnecessary constraints are avoided and to allow enabling works to continue, as part of the mitigation exercise it is envisaged that the site will be zoned to indicate the different strategies to be employed the closer that works are to the relevant habitat. The closer to the habitat the more limited works will be and the greater supervision will be required, with no work at all being allowed within a yet to be determined area until translocation has been undertaken.

Newts will be excluded from demolition areas by use of newt fencing erected in advance of operations. This may entail fencing around a number of buildings to form a compound that could also provide rubble stockpile areas, thus avoiding the necessity to haul demolition arisings away from the demolition area.

At commencement of construction Newts will (under licence) be translocated to the new ponds south of the runway. They will be excluded from the DTC construction site by approved newt fencing until completion of site works, when the newt fencing will be removed allowing the newts to re-occupy the DTC site if they so wish. New newt ponds and associated habitat will be provided around the perimeter of the DTC Site.

Early Works/Demolitions/Utilities excavations and trenches can be undertaken prior to translocation of endangered species by assessing the habitat and carrying the work out under ecological supervision where necessary. Precautions will be required such as fencing species out of the construction area, not leaving trenches open overnight and to only disturb the minimum amount of land required.

Buildings containing bat roosts can only be demolished after issue of a licence. Demolition of maternity , summer and hibernation (winter) roosts will be constrained in terms of window of availability for demolition. Other roosts such as transition roosts, intermediary roosts, male roosts etc are all subject to the same legal protection, but the timing constraints of works will be less. A table and classification system is being developed that will indicate which category each existing build falls within and by reference to a chart the periods of the year when that building can be demolished. Where bat roost will be lost replacement roosts will be provided in advance. In all cases buildings will be inspected by project ecologist before demolition proceeds.

Capita have provided an outline brief of the design of a new bat building, to consist of: a building of block/brick construction with at least 2(no) cavity walls. The building should be an “L” shape and be at least 10m long and 5m wide, with traditional roof construction of timbers overlaid with bitumen felt and tiles. The building should incorporate a cellar – which may be effected by building over existing air raid shelters.

Site clearance of hedges and existing trees will generally be undertaken outside of the breeding birds season. If such works needed to be undertaken within the bird breeding season then full environmental surveys would be undertaken by qualified environmentalists to identify whether such works could safely proceed or needed to be deferred.

6.0 Workforce and Staff Sourcing

6.1 Introduction

Employment during the construction phase has been divided into two distinct elements - Construction Site Workforce (workforce), which represents the general skilled and unskilled site labour force (employed by the principal contractor and his sub-contractor's) required to construct the developments and Construction Delivery Staff (staff), which represents the principal contractor's management, supervision and administrative employees and specialist sub-contractor's management and supervision employees required to manage the construction phase.
Based on the preliminary design and procurement information currently available it is envisaged that the individual projects will be resourced as indicated in this section. The assumptions on workforce and staffing summarised below have been used as inputs to the travel plans. The individual projects are discussed below;

6.2 DTC Workforce and Staff sourcing

The estimated total construction labour workforce peaks at 1200 which occurs in Qtr3 - 2012 (see Overall Summary table at Appendix B). From previous experience of major South Wales construction works it is predicted that 20% of labour will come from the West (Port Talbot/Swansea/West Wales area), 15% from the North (Bridgend and the western/central valleys) and the remainder from the East (Cardiff, Newport, Bristol – M4/M5 corridors). Dependant on timing of other major projects in the Region, it is envisaged that approximately 70-80% of labour will be "local" (residing within daily travelling distance) and any additional labour not able to travel daily would take lodgings in nearby Cardiff, Barry, Llantwitt Major or Bridgend areas where there appears to be ample suitable accommodation. The "non-local" labour will generally be skilled Sub-Contract Labour (e.g. steel erectors, cladding erectors, kitchen installers, etc) who are long term employees of companies based out of the area. Supplier and Sub-Contractor selection processes will take into account labour source sustainability issues alongside finished element functionality and commercial considerations.
The total construction staff envisaged is 140 Principal Contractor employees plus approximately 200 Sub-Contractors staff. Of the Principal Contractor staff approximately 50% will be local South Wales/M4 corridor resident with the remainder from within the Principal Contractors national organisation. With a 3+ year construction period, Staff living outside daily travel will either take lodgings in Cardiff/Barry/Llantwitt major/Bridgend or buy/rent houses within the local South Wales area. Sub-Contractors staff are anticipated to be a similar 50/50 split.

6.3 Early Works Workforce and Staffing

With a maximum workforce of 180 and a maximum staff compliment of approximately 30 it is envisaged that, save for any specialist sub-contractors specifically required for the works, labour and staff will be local mainly coming from the Principal Contractors existing workforce and supply chain providing continuity for known labour.

6.4 New Road – Northern Access Rd, Eglwys Brewis Upgrade (onsite works), plus Gileston Old Mill, St Athan B4256 Junction Improvement and Waycock Cross Junction (offsite works)

Collectively for both "offsite" and "offsite" works it is envisaged that workforce will peak at circa 160 persons and staff at approximately 40 persons. It is anticipated that all these resources will be available local to south wales/M4 corridor. Waycock Cross resource requirements are tabulated separately.

6.5 Service Families' Accommodation (SFA)

In total it is envisaged that a peak workforce of approximately 380 plus 45 staff will be required to meet the programme to have the SFA complete for the opening of DTC Phases 1 and 2 which are currently programmed for November 2013 and April 2014 respectively. It is further envisaged that this work will be split into 2 or 3 packages to which the individual sites ideally lend themselves. On this basis it is foreseen that the work will be undertaken by locally based organisations and resources providing much needed opportunity for the currently quiet house building industry.

6.6 Aerospace Business Park (ABP)

This work is currently envisaged as 3 phases – Phase 1 being completed by December 2014, Phase 2 by 2020 and Phase 3 by 2028. Being a tenant demand lead development it is difficult to predict the labour and staff resources but currently the following is envisaged;

Phase 1 – This peaks at around 110 workforce and 20 staff. It could be a single contract or a small number of individual contracts aligned to specific tenant requirements, but either way it is not envisaged that the local labour and staff resource market would be able to respond to requirements. T

Phase 2 and 3 – Working on the basis that there will be an even tenant take up throughout the period, Phase 2 (2014 – 2020) is envisaged to require a peak of 250 workforce and 40 staff and Phase 3 (2020 – 2028) will peak at approximately 410 workforce and 60 staff. Whilst it is difficult to predict so far into the future, and bearing in mind that Phase 2 and 3 occur after the main DTC works are complete, it is not envisaged that the local staff and labour market will have any problems in supporting such activity.

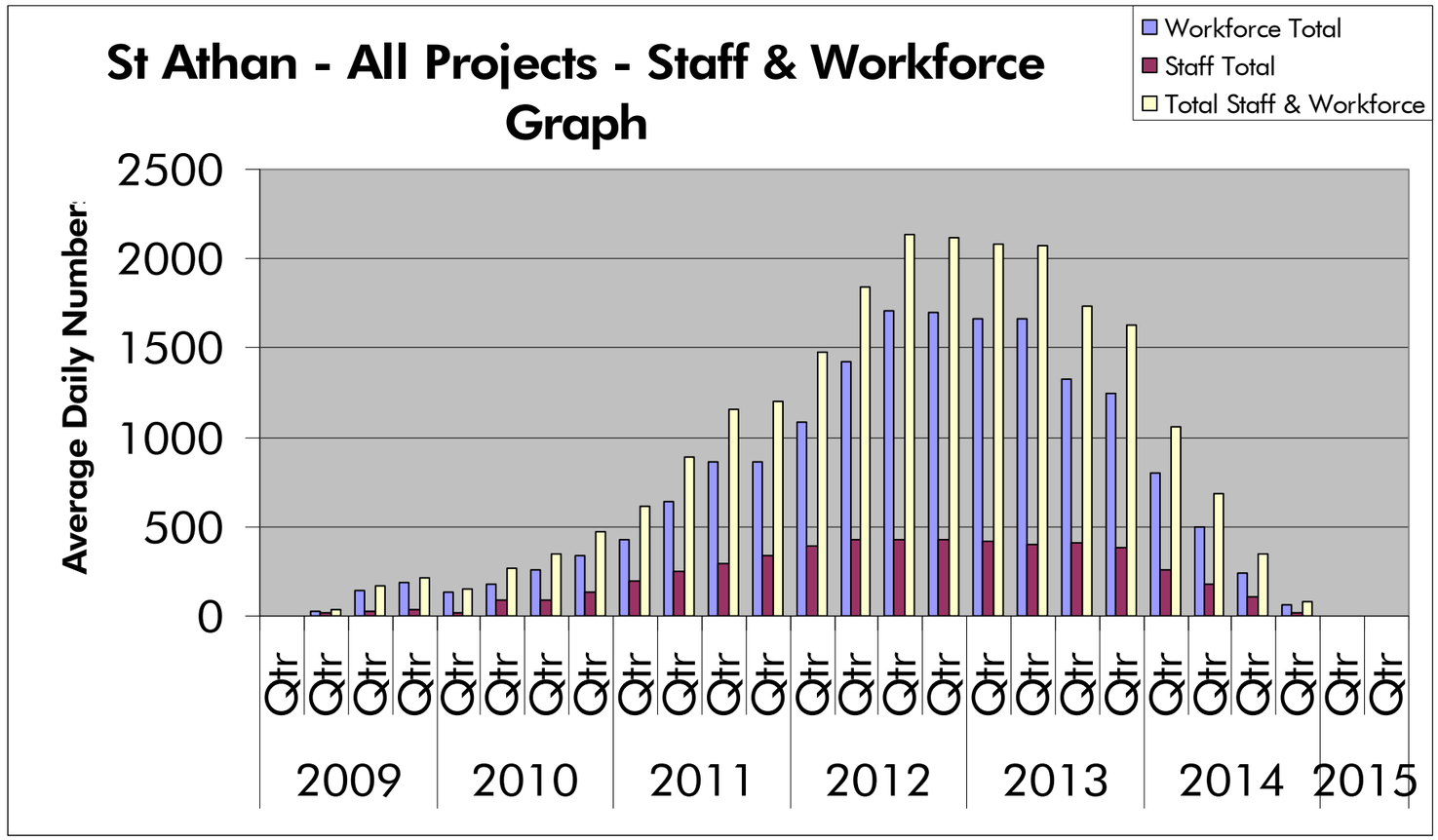
6.7 Combined effects of all concurrent St Athan projects

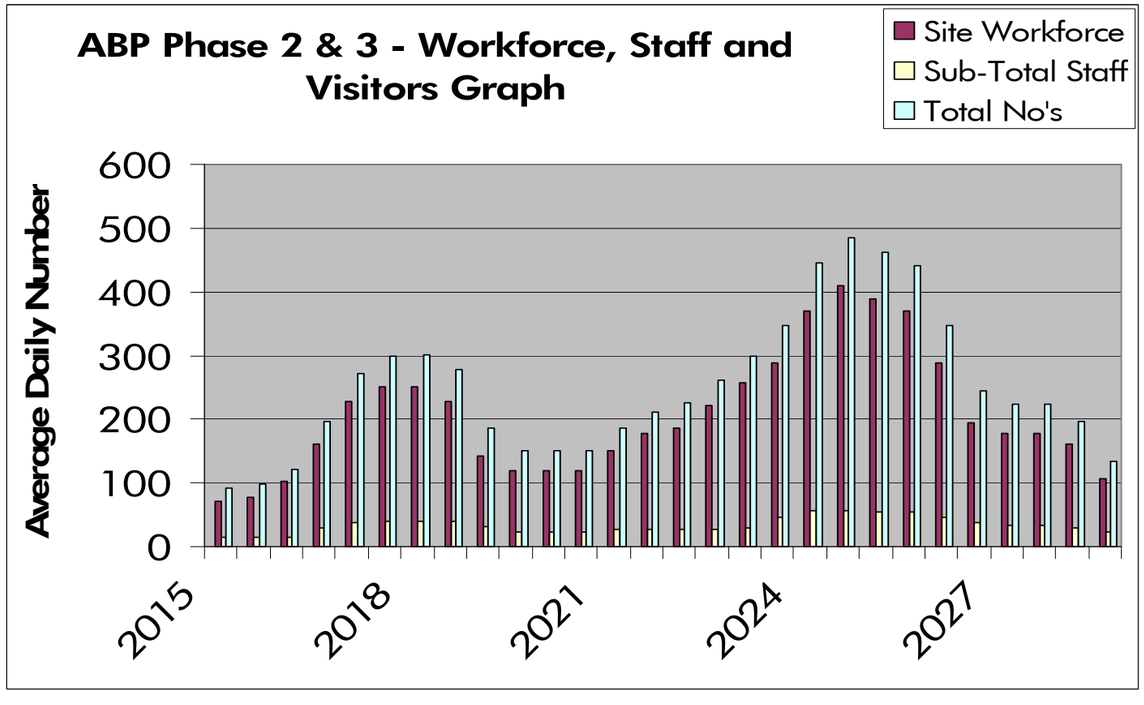
The graph at next page below demonstrates the cumulative effects of all the projects that will be running concurrently – (see also Overall Summary table at Appendix B). Whilst the peak of circa 1700 workforce and 430 staff is large by normal project standards, this is broken down into manageable elements by the separate contract provisions as discussed above. Only DTC main works is envisaged to require resource support from outside normal daily travelling distance and such level of "travelling" resources on large projects are normally required due to the greater element of specialist works which are undertaken by specialist sub-contractors with their already established resources.

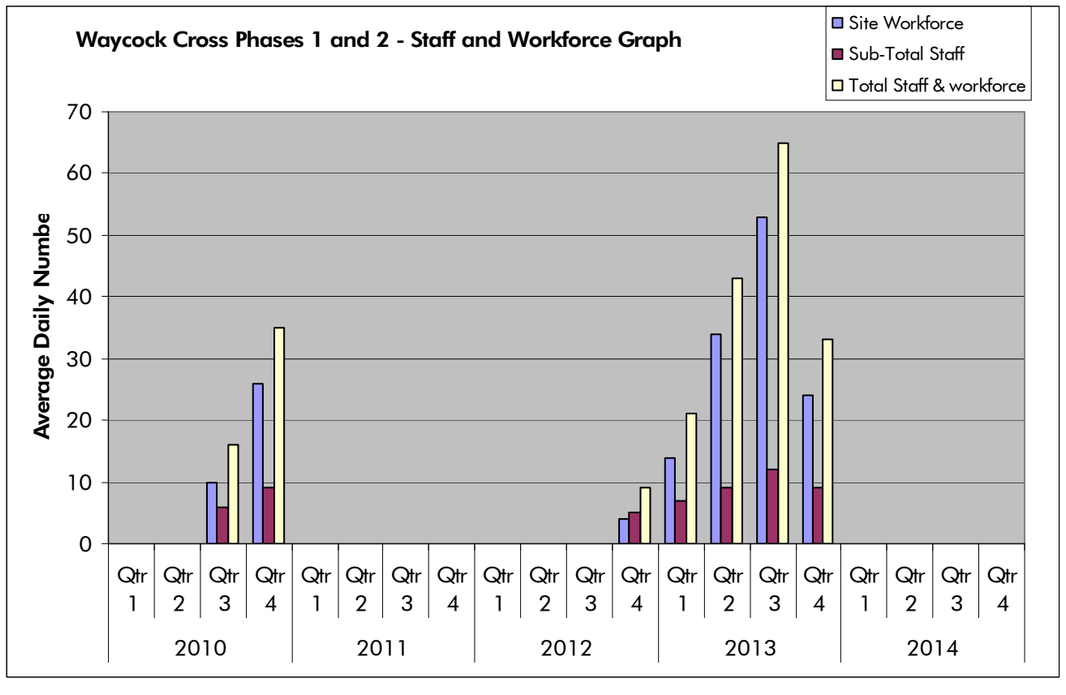
The graphs below (at next page) indicate average predicted daily Staff and Workforce levels for the following:

- St Athan All Projects – Early Works, New Roads (NAR, EBR Upgrade, Gileston and St Athan Junction), DTC, SFA and ABP Phase 1.
- ABP Phases 2 and 3.
- Waycock Cross Phases 1 (undertaken to facilitate St Athan "All Projects" construction traffic) and Phase 2 (to facilitate St Athan "All Projects" operation development).

The tables at Appendix B indicate the currently predicted resource levels for each of the above. These predictions are dependant on more detailed review as the design and procurement process develops.


St Athan - All Projects - Staff & Workforce Graph
Workforce Total
Staff Total
Total Staff & Workforce
Average Daily Number
2500
2000
1500
1000
500
0
Qtr
2009
2010
2011
2012
2013
2014
2015


ABP Phase 2 & 3 - Workforce, Staff and Visitors Graph
Site Workforce
Sub-Total Staff
Total No's
Average Daily Number
600
500
400
300
200
100
0
2015
2018
2021
2024
2027


Waycock Cross Phases 1 and 2 - Staff and Workforce Graph
Site Workforce
Sub-Total Staff
Total Staff & workforce
Average Daily Numbe
70
60
50
40
30
20
10
0
Qtr 1
Qtr 2
Qtr 3
Qtr 4
2010
2011
2012
2013
2014

7.0 Appendices

Appendix A - SA-C0XXX-RP-XXX-LO-X-0095 – Site Waste Management Plan

Appendix B – Workforce Staff and Visitors

Appendix C - SA-C0XXX-RP-XXX-LO-X-0105 – Construction EA & ICR

Appendix D - SA-C0XXX-RP-XXX-LO-X-0110 - Environmental Aspects and Impacts Control Register

Appendix E – Construction Materials Deliveries